Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

COST ($ in Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	449,747	399,829	447,006	538,442	532,412	530,934	520,679	531,832
0101 Systems Engineering & Integration	271,916	241,293	112,790	115,879	116,353	115,984	127,932	134,356
0105 Countermeasures/Counter-Countermeasures (CM/CCM)	19,511	29,557	24,700	26,522	26,700	27,700	23,028	23,366
0201 Command and Control, Battle Management and Communications Core	18,311	1,667	0	0	0	0	0	0
0102 Intelligence and Security	16,568	20,659	21,294	23,346	25,727	27,286	27,892	28,510
0103 Producibility & Manufacturing Technology	28,267	36,254	27,313	36,211	38,597	41,564	42,462	43,378
0202 Hercules Core	20,955	0	0	0	0	0	0	0
0104 BMD Information Management Systems	37,535	61,453	125,257	184,869	166,755	156,754	140,597	145,213
0106 Modeling & Simulation	0	0	103,680	106,497	108,090	110,120	111,397	112,713
0107 Safety, Quality and Mission Assurance	0	0	19,694	20,800	21,123	21,890	20,654	21,143
0602 Program-Wide Support	36,684	8,946	12,278	24,318	29,067	29,636	26,717	23,153

Note:
In FY 2004, Project 0102 Intelligence and Security captures funding for Intelligence efforts. In FY 2005 through FY 2011, Project 0102 captures funding for Intelligence, Counterintelligence, and BMDS Certification.

In FY 2004, Project 0104 BMD Information Management Systems was increased to ensure Information Assurance (IA) and Information Technology (IT) security operations were in place for the BMDS Initial Defensive Operations (IDO). In FY 2006 through FY 2011, there is an increase in Project 0104 due to the Computing Infrastructure, Computing and Network Management Services, and Information Distribution Services being consolidated from PE 0901598C into this PE and Project. In addition, FY 2007 has an increase of $42M to the Computing Infrastructure initiative to fund the IM/IT infrastructure, operations and maintenance costs required to accomplish the consolidation of MDA employees in the National Capital Region (NCR) into an MDA campus environment.

In FY 2004 and FY 2005, funding for Project 0106 Modeling and Simulation is captured under Project 0101 Systems Engineering and Integration.

The prior year (PY) and the FY05 funding for Software Acquisition Improvement Program in the amount of $4.362M is captured in Project 0101, and for Safety, Quality, and Mission Assurance the amount of $12.000M is captured in PE 0603882C Project 0602.

A. Mission Description and Budget Item Justification

The mission of the Missile Defense Agency (MDA) is to develop and field an integrated, layered Ballistic Missile Defense System (BMDS) to defend the United States, its deployed forces, friends, and allies from ballistic missiles of all ranges in all phases of flight. In late 2004, the United States fielded an initial, limited capability to defeat a ballistic missile threat; through the Future Years Defense Plan (FYDP), this initial capability will be expanded by adding and networking forward-deployed sensors, interceptors at sea and on land, and layers of increasingly capable weapons and sensors.

MDA Systems Engineering and Integration's (SE&I) mission is to plan, define, design, integrate and verify capability of the Ballistic Missile Defense System (BMDS) to defend the United States, and its friends, and allies; to enhance these capabilities over time through Block upgrades; and to support transition of these capabilities to operational use. Beginning this year, MDA SE&I has significantly modified its strategy for executing and delivering critical system engineering functions and products. The new approach significantly reduces the size of the system engineering team and includes a revised incentive structure with industry to reduce cost. As an additional cost saving measure, the team has been rebalanced to reduce the level of industry participation and increase use of

more cost effective Scientific, Engineering and Technical Assistance (SETA) and Federally Funded Research and Development Center (FFRDC) staff. Additionally, the revised approach reshapes and rescopes system engineering efforts to rely more heavily on the detailed system engineering support provided within the element program offices. These initiatives, the result of careful analysis, provide the minimal manpower requirements required to perform critical BMDS system engineering and integration efforts. The result is a lean product focused system engineering effort which provides increased emphasis on collaborative system engineering activities with BMDS element systems for improved efficiency in program execution. Further reductions within this project may jeopardize the Government's ability to perform the system integration role and compel use of a prime contract for system integration with increased cost and schedule risk.

BMDS-level systems engineering and integration is vital to achieving an integrated BMDS system. This capability requires a dynamic and redundant operational architecture with an unprecedented level of systems engineering, coordination and integration across the Department of Defense (DoD), the Services, other Government Agencies, laboratories, and industry. The system must operate in real-time and provide global battle management, command, control, and communications extending from the National Command Authority (NCA) to ships at sea, aircraft in flight, and troops in the field. The challenge is enormous to provide vast geographic coverage and robust layered defense-in-depth through networking of a broad assortment of sensor assets (space, sea, air, and ground-based that encompass detection, cueing, track, discrimination, engagement and hit/kill assessment to support an array of dispersed engagement assets including boost, mid-course, and terminal interceptors and directed energy weapons. Systems Engineering and Integration is the only MDA organization capable of providing this collaborative and detailed systems engineering and integration process required across the entire spectrum of BMD Elements, adversary capability, and geographical regions. In late 2004, the Systems Engineering and Integration team conducted the engineering trade studies and developed the top-level plans, objectives, and designs allocating functional requirements, interface specifications, information exchange requirements and key performance parameters to BMDS sub-systems (Elements) necessary to achieve BMDS Initial Defensive Capability. MDA will expand this capability through the FYDP.

To execute its system engineering and integration oversight responsibilities, the Systems Engineering and Integration team conducts an on-going series of engineering and integration studies the purpose of which is to assess BMDS development progress, evaluate emerging and proposed capability improvements, conduct performance trades, and recommend program adjustments to optimize system-wide performance, fill capability gaps, and enable timely delivery of ever increasing BMDS capability to the warfighter. To date these efforts have produced a series of strategic plans to guide incremental development and delivery of progressively more robust BMDS capability to defeat increasingly sophisticated rogue ballistic missile threats launched from any point on the globe.

Missile Defense Plan I, defined by MDA Systems Engineering and Integration, introduces and integrates forward-Based radars into the BMDS architecture to complement and supplement Ground Based Missile Defense Element Sensors. The introduction of these forward-Based radars, AEGIS Destroyers and Cruisers with Surveillance and Tracking capability and a Forward-Based X-Band radar increases Ground-Based Missile Defense capability and extends battlespace by providing earlier detection, track and engagement of incoming threats. The data these radars provide enable earlier engagements with higher probabilities of engagement success and multiple engagement opportunities. In addition, the plan integrates AEGIS equipped ships with the Standard Missile-3 interceptor and incorporates additional PATRIOT PAC-3 missile inventory. This provides initial protection of the U.S. from long range threats and protection of deployed forces, allies and friends. Specific Engagement Sequence Groups include several within the Terminal Defense Segment to include four involving PATRIOT and seven Midcourse Defense Segment Engagement Sequence Groups (engage on AEGIS, launch on AEGIS, engage on Cobra Dane, engage on Upgraded Early Warning Radars (UEWRs-Beale and Fylingdales), engage on Sea-Based X-Band radar (SBX), and launch on Forward-Based X-Band Radar (FBX)). These are the focus of the Initial Defensive Capability (IDC). Block 2004 Midcourse Engagement Sequence Groups represent the early development and fielding of the Initial Defensive Capability including ground-based interceptors, an updated Cobra Dane radar, upgraded Early Warning Radars, a Sea-Based X-Band radar, In-flight Interceptor Communications System (IFICS) data terminals, Fire Control and Communications Nodes, and communications networks including fiber and satellite.

Missile Defense Plan II integrates additional forward-based sensors (more Forward Based X-Band Radars, AEGIS ships and adds THAAD Radars) to the BMDS and upgrades their ability to identify the reentry vehicles in the face of countermeasures by including advanced countermeasure algorithms from the Hercules Program into the radar processors. In addition, more interceptors are fielded including Ground Based Missile Defense Ground Based Interceptors, Standard Missile-3 interceptors on AEGIS equipped ships, more PATRIOT PAC-3 missiles, and the first Terminal High Altitude Area Defense (THAAD) firing unit with missiles and radar. This completes protection of the U.S., expands coverage to allies and friends, and increases countermeasure resistance and capability against shorter-range threats. An additional three Midcourse Engagement Sequence Groups (engage on Upgraded Early Warning Radar (Thule), launch on Defense Support Program / Space-Based Infra-Red Sensor (DSP/SBIRS), and engage on Forward-Based X-Band Radar) are defined and developed. Block 2006 includes continued development and fielding of Ground-Based capabilities, integrated testing of the Multi-layered BMDS components, implementing the concept of a rotating pool of interceptors to ensure latest capabilities are fielded. Additionally, Block 2006 focuses on AEGIS Ballistic Missile Defense element development of improved prototype radar discrimination and increased AEGIS Weapon System to BMDS Integration enhancing or increasing capabilities of AEGIS to launch and/or engage on other BMDS radars. Block 2008 incorporates two additional Midcourse Engagement Sequence Groups (launch/engage on Electro-Optical / Infra-Red Sensor, and

launch/engage on Terminal High Altitude Area Defense (THAAD) Radar) while adding additional terminal defense Engagement Sequence Groups providing robust regional missile defense against short and intermediate range missiles.

Missile Defense Plan III will continue to keep pace with rogue threat inventories, address more complex threats, address asymmetric attack, and provide the development foundation to address the near-peer threat. Potential capabilities are the initial fielding of the Space Surveillance Test Bed Constellation and X-Band Dish Radars and upgrade of Early Warning Radars to address the asymmetric threat.

Systems Engineering and Integration employs integrated working groups to achieve broad engineering collaboration across MDA. Test Bed Planning determines technology needs, develops concept descriptions (CDs), and defines Engagement Sequence Groups (ESGs). Engagement Sequence Groups describe combinations of weapons, sensors and Command and Control, Battle Management, and Communications (C2BMC) capabilities that must work together to detect, track and intercept an enemy missile - the complete kill chain from the time the threat missile is first detected through intercept. Test Bed Planning also finalizes recommended Engagement Sequence Group assignments to Test Bed development levels. BMDS design allocates the functions required to execute all Engagement Sequence Groups to individual Elements and components in the BMDS specifications and interface control documents. In turn, the Elements perform detailed design of their portions of the system. The SE&I team builds a time-phased Master Integration Plan (MIP) to define integration phases within the block, which becomes the building blocks to achieve final capability. Integrated functionality is then tested and verified in accordance with the Responsible Test Organization's Integrated Master Test Plan (IMTP) and the system engineering Capabilities Verification and Assessment Plan (CVAP). The system engineering Verification group develops verification plans, target requirements, and the Capabilities Verification and Assessment Report (CVAR). Finally, Operational Integration and Support provides User support to the Warfighter and ensures consideration of military operations in the engineering design process. The Responsible Test Organization leads MDA's Test Program.

The BMDS Core Program Element funds the Systems Engineering and Integration; Modeling and Simulation; Command and Control, Battle Management and Communications Core; Intelligence; Producibility and Manufacturing Technology; Countermeasures/Counter-Countermeasures; Hercules core; Ballistic Missile Defense Information Management Systems; and Program-Wide Support element portions of Test bed Blocks 2006, 2008 and 2010 and other mission area investment activities. These activities comprise a set of critical, inter-related, mutually supporting activities that span the development of the BMDS, reducing duplication and promoting employment of common, fundamental, rigorous engineering practices. The BMDS System Engineer provides the cross-cutting System-level engineering necessary to develop and deliver the integrated BMDS.

(0101) Systems Engineering and Integration (SE&I): SE&I provides the framework, processes, and direction necessary to provide an integrated BMDS capability. It employs a Test Bed development approach to set the conditions for on-going evolutionary improvements to the system. A collaborative relationship with the weapons, sensors, command and control, battle management and communications developers is the foundation for ensuring unity of effort in the development of subsystems and architecture designs to deliver system-level capability. The overarching engineering activities for future BMDS capabilities are developed and integrated into the Test Bed consisting of the system engineering phases of plan, design, develop, test, verify, and integrate into operations. The planning effort assesses gaps in system performance and mission accomplishment, and identifies and evaluates proposed improvements. The design effort determines the functionality, capabilities, and interfaces required to implement the new or modified capability. During the design phase, as the system designer MDA SE&I ensures that the interface designs will effectively connect the elements/components while looking ahead to standardize the interfaces for future expansion of the BMDS. The SE&I led integration effort defines and facilitates implementation of BMDS integration phases by ensuring element program content reflects and supports integration themes. Additionally, SE&I is responsible for BMDS technical configuration management. Development efforts encompass all subsystem and component activities to plan, program, design, and execute the design in accordance with integration, phasing, and verification direction. Verification and assessment efforts verify the capability of the “as built system” and assess integrated development and emerging integration concepts with respect to requirements from the Test Bed System Specification, parameters from the Adversary Data Package (ADP) and the system Technical Objectives and Goals (TOG). Operational integration efforts are essential to produce specific engagement sequences that combine sensors, weapons, and Command, Control, Battle Management and Communications in the operational BMDS.

(0105) Countermeasures/Counter-Countermeasures (CM/CCM): As a critical activity in SE&I Organization, the Countermeasures/Counter-Countermeasures (CM/CCM) Program assesses technical risks, identifies mitigation approaches and integrates engineering changes to the baseline BMDS to improve its performance against adversary capabilities, focusing primarily on defeating countermeasures. The CM/CCM Program determines the range of feasible engineering approaches an adversary could use to defeat or degrade the BMDS, and develops conceptual countermeasures to realize those approaches. The CM/CCM Program works in conjunction with Threat Systems Engineering to ensure consistency of these adversary capabilities. The CM/CCM Program brings

together capabilities from across MDA; to conduct integrated engineering assessments of BMDS performance against countermeasures and the technical risks posed by these countermeasures. High-risk areas are identified, and counter-countermeasure options are proposed to mitigate these risks. An independent team of senior experts, funded by the CM/CCM Program, reviews the adversary capabilities, BMDS performance analyses, risks, and counter-countermeasure proposals and provides their assessment to the MDA Director.

(0201) Command, Control, Battle Management, and Communications (C2BMC) Core: This project funds the civilian salaries for the C2BMC team that integrates the Command, Control, Battle Management, and Communications portion of the BMDS into the Command and Control (C2) structure of the Combatant Commanders and into that of allies and friends.

(0102) Intelligence and Security: This project funds four specific efforts focused on maximizing actionable threat information and ensuring the safety of both the BMDS and its personnel: 1) intelligence, 2) counterintelligence, 3) BMDS information assurance systems certification, and 4) security. Together these efforts provide critical information regarding threat ballistic missile system capabilities (via intelligence); protection of personnel, activities, and technology from espionage and terrorism through active and passive activities (via counterintelligence); BMDS system vulnerabilities (via BMDS certification); and challenges to the security of the BMDS, its personnel, and associated facilities (via security).

(0103) Producibility and Manufacturing Technology: A component of rigorous systems engineering practices, Producibility and Manufacturing is essential because it funds programs that provide common, integrated programs across the Ballistic Missile Defense System Elements to ensure mature industrial manufacturing capabilities are available to the Blocks through risk reduction, cost reduction/avoidance, and performance enhancement. Producibility and Manufacturing promotes efforts in commonality and spreads best practices for producibility and manufacturing across the system Elements by cooperatively funding and leveraging efforts. It provides crosscutting manufacturing risk assessments, industrial capability assessments, and near term producibility enhancements. Manufacturing risk assessments are accomplished through Engineering and Manufacturing Readiness Level (EMRL) Assessments, the Producibility and Manufacturing Technology systems engineering tool that employs widespread industry and BMDS Element interaction to analyze the maturity of manufacturing processes as a factor in the BMDS Risk Management Process. Industrial Capability Assessments (ICAs) are accomplished across the BMDS Industrial Base where trades are performed to assess and analyze the original equipment manufacturers (OEMs), supplier base, and others that produce end items for the system. Near Term Producibility Improvements are accomplished through efforts in a number of key investment areas: Power Systems, Radiation Hardening (RAD HARD), Manufacturing Process Improvements, Electro-Optics/Infrared (EO/IR), Radar and RF, Propulsion, and Advanced Materials and Structures.

(0202) Project Hercules: Project Hercules is a national effort to develop robust detection, tracking, and discrimination algorithms to counter off nominal and evolving missile threats. Hercules is also developing a physics-based Decision Architecture that applies advanced decision theory to future BMDS command, control, and battle management (C2BM) concepts. In addition to a general program to develop algorithms useful against targets in all phases of flight, Hercules has specific projects to develop algorithms for forward based sensors, the Decision Architecture, and mitigating countermeasures. Hercules develops algorithms to enhance BMDS element capabilities in Test Bed Block 06, 08 and beyond and will provide these algorithms to the BMDS Elements for insertion into their respective programs.

(0104) BMD Information Management Systems: The Ballistic Missile Defense (BMD) Information Management Systems Project integrates and supports every aspect of the BMDS by providing a secure and reliable Information Technology (IT) infrastructure and the Information Management/Information Technology (IM/IT) services necessary to enable the BMDS Elements and operators to collaborate and share information which is essential to accomplishing the complex integrated BMDS mission. This project is an essential and integral component of the Ballistic Missile Defense SE&I Organization and BMDS Core Program Element because it funds the Agency's communications backbone and infrastructure that enables all the Projects in all the Program Elements to communicate in a safe, secure and affordable manner. MDA Information Management/Information Technology assets are administered, acquired, managed and operated in compliance with and meet the goals of existing statutes and DoD regulations, in particular the President's Management Agenda, the Clinger-Cohen Act, the E-Government Act of 2002, the Government Paperwork Elimination Act, and the Office of Management and Budget (OMB) requirements to align IT investments with the Federal Enterprise Architecture (FEA).

(0106) Modeling and Simulation: Modeling and Simulation is responsible for defining, developing, and maintaining a comprehensive modeling and simulation strategy necessary to support the spiral development of the BMDS. MDA Systems Engineering and Integration provides the BMDS model, parameters and characteristics to be simulated for each time frame. In addition, MDA Systems Engineering and Integration provides the detailed threat and environments which are used by Modeling and Simulation to build standardized models for use across the agency to evaluate performance. This comprehensive modeling and simulation program establishes and aligns enterprise Modeling and Simulation processes. These Modeling and Simulation tools provide a credible basis for acquisition and operational decisions. Modeling and Simulation functional responsibilities include development and promulgation of policy for phenomenology, lethality, common simulation and

threat environment, system-level simulations, and international Missile Defense initiatives. The integration of vertical and horizontal system-level tools is critical to supporting the system-level engineering and development across the SE&I Organization and is critical to future Modeling and Simulation development. The Modeling and Simulation program will oversee, coordinate, and manage all development, maintenance, requirements engineering, configuration management, verification and validation (V&V), accreditation, information assurance, and program protection responsibilities required to provide credible Modeling and Simulation tools.

(0107) Safety, Quality and Mission Assurance: As a critical activity in the BMDS, the mission of the Safety, Quality, and Mission Assurance (SQMA) Directorate is to develop and implement BMDS-wide policies, and perform engineering and technical studies that foster and ensure MDA system-wide safety, quality and mission assurance. In addition, the SQMA directorate supports the Agency/Elements and their prime contractors, sub-contractors and suppliers through direct on-site support and through emergent/surge requirements as dictated by technical/quality issues throughout the fiscal year to meet evolving requirements from MDA leadership. This includes embedding mission assurance specialists at supplier and government locations, as well as at program element sites; standing up independent technical review teams; and providing independent technical assessments. Support includes advising senior management on the viability of industry to meet contractual requirements, oversight and insight into current manufacturing safety support for all launch facilities and industry, and an overall Agency-wide BMDS quality perspective to ensure requirements are met to achieve a cohesive BMD system. In addition, SQMA is responsible for implementing Section 804 of the 2003 Defense Authorization Act, which requires MDA to establish and implement a program to improve the software acquisition process. Software acquisition improvement activities encompass the development, engineering, testing, production, and fielding of ballistic missile defense elements under the cognizance of MDA. SQMA efforts enable the development, testing, and fielding of an effective, reliable, and safe missile defense capability. Within the directorate, the safety, quality and mission assurance responsibilities are functionally allocated to four groups: Assurance Integration, Mission Assurance, Quality Assurance, and Safety.

(0602) Program-Wide Support: Program-Wide Support provides funding for common support functions across the entire program such as strategic planning, program integration, cost estimating, contracting, financial management to include preparation of financial statements, reimbursement of financial services provided by DFAS, internal review and audit, earned-value management, and program assessment. Includes costs for both government civilians performing these functions as well as support contractors providing government staff augmentation in these areas. Applies to costs at the MDA HQ as well as its Executing Agents in the Services: Army Space and Missile Defense Command, Army PEO Space and Missile Defense, Office of Naval Research, and various Air Force laboratory and acquisition activities. Other costs include physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses at the various MDA Executing Agent locations, which at the MDA HQ are generally funded from the Management Headquarters Program Element (0901598C). Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuation on a limited number of foreign contracts.

B. Program Change Summary	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2005 PB)	445,356	479,764	492,988	527,541
Current President's Budget (FY 2006 PB)	449,747	399,829	447,006	538,442
Total Adjustments	4,391	-79,935	-45,982	10,901
Congressional Specific Program Adjustments	0	-70,200	0	0
Congressional Undistributed Adjustments	0	-9,735	0	0
Reprogrammings	5,565	0	0	0
SBIR/STTR Transfer	-1,174	0	0	0
Adjustments to Budget Years	0	0	-45,982	10,901

Funding changes in FY 2004 - FY 2007 from the Previous President's Budget (FY 2005 PB) to the Current President's Budget (FY 2006 PB) are due to changes in the Missile Defense Agency's (MDA) priorities required to develop, field, and sustain an integrated layered Ballistic Missile Defense System (BMDS) to defend the United States, its deployed forces, friends and allies from ballistic missiles of all ranges and in all phases of flight.

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

COST ($ in Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0101 Systems Engineering & Integration	271,916	241,293	112,790	115,879	116,353	115,984	127,932	134,356
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note:
In FY 2004 and FY 2005, funding for the Modeling and Simulation program is captured under Project 0101. Starting in FY 2006 the funding for this effort is in Project 0106.

A. Mission Description and Budget Item Justification

The System Engineering and Integration (SE&I) mission is to engineer a fully integrated BMDS by defining, managing, and integrating all engineering development for the BMD System. Coordinating the design, development and integration of the various Elements and segments is a program imperative. Beginning this year, MDA System Engineering has significantly modified its strategy for executing and delivering critical system engineering functions and products. The new approach significantly reduces the size of the system engineering team and includes a revised incentive structure with industry to reduce cost. As an additional cost saving measure, the team has been rebalanced to reduce the level of industry participation and increase use of more cost effective Scientific, Engineering and Technical Assistance (SETA) and Federally Funded Research and Development Center (FFRDC) staff. Additionally, the revised approach reshapes and rescopes system engineering efforts to rely more heavily on the detailed system engineering support provided within the element program offices. These initiatives, the result of careful analysis, provide the minimal manpower requirements required to perform critical BMDS System Engineering and Integration efforts. The result is a lean product-focused system engineering effort which provides increased emphasis on collaborative system engineering activities with BMDS element systems for improved efficiency in program execution. Further reductions within this project may jeopardize the Government's ability to perform the system integration role and compel use of a prime contract for system integration with increased cost and schedule risk.

Coordinating developments across several interrelated programs employing several prime contractors, combined with the requirement for the BMDS to operate as a unified system stretched across nine time zones, is an enormous challenge. The MDA SE&I Team is defining architectures, defining critical interfaces, identifying information exchange requirements, reviewing technical and performance risks and developing mitigation strategies, overseeing program development maturity across segments and managing configuration baselines within block development cycles to ensure continuous availability of a proven performance baseline system for defense of the United States, friends, allies and deployed forces. System engineering is further tasked to assess feasibility of BMDS evolutionary development concepts and make performance trade-offs and investment recommendations through the collaborative system engineering process which defines required system-wide behavior, validate Element system designs, and assess and verify system capability. The system engineering process involves five-phases: 1) Test Bed Planning 2) design 3) integration 4) test and verification and 5) operational integration. It enables functional allocation of required capabilities across Elements in a time-phased approach focused on delivery and improvement of the BMDS system capability. The process is temporally organized within two-year development Test Beds which enable the SE&I function to define a baseline system architecture and set time-phased technical goals and objectives to guide the design, development and delivery of evolutionary enhanced BMDS capabilities. Additionally, this engineering process includes Advanced Systems; Force Structure Integration and Deployment; Producibility and Manufacturing Technology; Targets and Countermeasures; and other functional areas. Collaborative Engineering ensures that components (weapons, Sensors, C2BMC), and the Elements are part of an integrated system design.

BMDS capabilities are matured using a block engineering development process within a Test Bed framework. The Test Bed represents two year blocks for maturation, integration, and test of Elements contributing to a time-phased improvement of BMDS capability. It is a management framework enabling MDA to execute configuration management, focus development activities, perform trade-offs, and prioritize investments to ensure end-to-end functionality across a discrete segment of BMDS Elements. For example, Test Bed 2004 refers to the Research and Development effort underway during CYs 2004 and 2005. Verified capabilities and associated subsystem changes mature to an additional defensive capability which is then available for transition to an operational capability as Block Upgrades. Block 2004 currently includes eleven BMDS Engagement Sequence Groups (ESGs) which define the sequence of events used to enable the BMDS weapon to engage ballistic missile target(s). The ESGs provide the structure for measuring the level of performance and integration maturity of the Elements within the overall BMDS. They provide the framework to focus systems engineering efforts and define and assess system architectures, interfaces, and information exchange requirements. The Block 2004 ESGs include a Terminal Defense Segment as well as a land and sea-based Midcourse Segment. The BMD Terminal Defense capability uses the PATRIOT system with the PAC-3 Interceptor while the Midcourse Segment capability uses both the GBI and SM-3 interceptors and various sensors depending upon the threat to be countered. Specifically, the Test Bed/Block 2004 Midcourse ESGs provide the BMDS capability to engage on Cobra Dane, engage on Upgraded Early Warning Radars (UEWRs) (Beale, and Fylingdales), engage on the Sea-Based X-Band radar (SBX), launch on the Forward-Based X-Band Radar - Transportable (FBX-T)

and engage on AEGIS, launch on AEGIS. These are the focus of the BMDS Initial Defensive Capability (IDC) and maturation to a Block 2004 capability which spans thru the 31 Dec 2005 timeframe. Maturation and integration of the BMDS elements for the Block 2006 Test Bed includes continued development and fielding of Ground-Based capabilities, integrated testing of the Multi-layered BMDS components, and implementation of a rotating pool of interceptors to ensure latest capabilities are fielded. Additionally, Block 2006 focuses on an expanded capability of the FBX-T radar with the initial inclusion of advanced discrimination algorithms via the Hercules Suite 1 delivery, AEGIS BMD development of improved prototype radar discrimination, increased AEGIS Weapon System - BMDS Integration, and a maturation of THAAD interceptor capability to a Level 1 ESG. Block 2008 incorporates additional BMDS Midcourse ESGs (launch/engage on Electro-Optical/Infrared (EO/IR), and integration of the launch/engage on THAAD to increase our BMDS multi-layered terminal defense capability for robust regional missile defense against short and intermediate range missiles. While top level system engineering activities are focused on integrating the various Elements to provide an end-to-end seamless BMDS capability, additional systems engineering activities are focused on integrating advanced technologies to improve performance of available defensive capabilities. These efforts include new interceptor technology, improved discrimination and tracking algorithms, counter/countermeasures, enhanced battle management and decision support systems, and improved kill vehicles (EKV). These technology efforts will generate enhanced ESGs and also lead to new ESGs.

The Test Bed planning function is initiated by assessing many inputs, such as maturing technology possibilities, and candidate concepts enhancing capability of the BMDS. These inputs include the previous Test Bed system specifications, Element configurations, gap analysis, adversary capability descriptions, technical objectives and goals, technology assessments, international participation and director's guidance. Concepts for adding Concurrent Test and Operations capabilities are being evaluated as well as new concepts for enhancements based upon the addition of the Kinetic Energy Interceptor (KEI) capability. These concept descriptions and their ESGs are the foundation for the improvements to the BMDS and form the building blocks for the Element programs. Concepts demonstrating the most potential for improving BMDS effectiveness are integrated into BMDS program planning. Test Bed 06 currently has 21 concepts under evaluation and has already identified 14 mature ESGs and 31 maturing test bed ESGs which may be developed during the Test Bed 06-12 time frame. Concept Descriptions are being evaluated which may lead to solutions to current gaps caused by countermeasures requiring more discrimination capabilities. These include concepts for enhancements to EKV, Multiple kill Vehicles (MKV), additional physics-Based Algorithms for Advanced Discrimination, and Decision Architectures for Advanced Discrimination. These concept descriptions and their associated Engagement Sequence Groups (ESGs) are the foundation for the improvements to the BMDS and form the building blocks for the Element programs. Without the identification of these concepts and the associated ESG improvements, the Elements would not have the interface requirements necessary to make these ESGs operational. Approved ESGs are incorporated in BMDS design and description documentation to ensure Element programs include required hardware, interfaces and information exchange requirements to support attainment of ESG capability within desired timeframe. This process is executed collaboratively with the BMDS Element system engineers, and other stakeholders to include the warfighter. The result is the disciplined flow-down of requirements to BMDS system specifications. The planning function enables the MDA to review system integration maturity across the individual Element programs, assess Element maturity, and to provide tailored program direction consistent with the readiness of a specific Element for BMDS integration. Planning activities focus on system integration horizontally across BMDS Elements to ensure bounded efforts for enhancing existing BMDS capability and also vertically through the individual Elements to ensure program plans focus on the most promising technologies and objectives attainable within the test bed period. System improvements within the test bed below the level of BMDS system-wide integration are available for system-wide integration in subsequent Test Bed epochs. For example, a system conducting ground testing or initiating its first flight tests may be part of Test Bed 2004 (through calendar year 2005), however it may not be planned for system level integration into the BMDS until Test Bed 2006, and may not be part of the available defensive capability until graduating from the Test Bed as a Block 2008 capability.

Approved system architectures and operational concepts are documented in the BMDS Test Bed System Specifications. These documents provide a common set of requirements and design parameters to facilitate development of subordinate Element designs and component specifications, and the specifications drive Element designs ensuring integration across Elements within the Test Bed. The system engineering performed during the design phase develops functional requirements, information exchange requirements, interfaces, and key interoperability requirements to ensure successful attainment of desired functionality among BMDS Elements. Individual Element designs and specifications are coordinated and approved through SE&I. Furthermore, Element designs and specifications drive strategies for verification and assessment of Element performance and capability. The objective is to make enhanced capabilities available for Additional Defensive Capability by the end of the Operational Block for which it is planned. The end state is an approved architecture design and resulting ESGs which form the basis for test bed engineering and testing activities.

The range of system engineering integration activities vary from analytical/simulation-based integration of concepts to development of specific interfaces for early integration of components. Integration describes those system engineering activities and events required to structure an integrated and “seamless” end-to-end BMDS capability composed of Elements working alone and in conjunction with other Elements to effect a ballistic missile defense engagement. The Integration phase begins with the building of a time-phased Master Integration Plan (MIP) to define phases within the block, and to allocate the ESG functionality captured in the system specification and interface documents to those phases. The System Engineering led integration team participates in

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
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Element level design reviews including document review and conducts system level design reviews to ensure system specifications are being properly implemented. Using a Planning Allocation Matrix (PAM) tool, the integration team tracks the time-phase implementation of allocated functionality in Element software builds. In addition to design reviews, system engineering conducts routine program execution and technical reviews with MDA leadership to ensure subordinate system engineering activities remain within the BMDS engineered parameters to describe functionality within the planned timeframe. Internal interface status reports are provided weekly to monitor interface implementation and identify issues. When deviations arise in planned schedules either from technical challenges or other unforeseen events the System Engineering integration team in coordination with the Element system engineers develop risk mitigation strategies (design alternatives), and adjust plans and priorities. Engineering studies and analysis are conducted to explore alternative approaches to attaining an ESG, assessing feasibility and affordability.

System verification and assessment evaluates the “as built system” in accordance with the system specification. New capabilities are critically assessed against established Technical Objectives and Goals in a consistent manner. This phase of the systems engineering process completes the systems engineering cycle providing feedback for entering the next phase of development; as well providing the warfighter knowledge of the system's capabilities, military utility assessment (MUA) and operational test and evaluation (OTA). This facilitates development or deployment decisions by the Department. Verification and assessment of the BMDS is similar to evaluation of strategic offensive forces. Namely, that testing cannot be done for all operational conditions and situations. MDA is pursuing system level verification and assessment, which is highly dependant on analysis and grounded in the use of accredited system models. Ground and flight tests are selected to gather data anchoring system models used to determine the effectiveness of the system under realistic scenarios. The ESGs provide a common lexicon to measure performance of various combinations of the sub-systems, enabling greater understanding of the complexities and interactions of the system. Verification is accomplished through collection of pre-defined performance test data supporting verification and assessment of BMDS capability, identification of shortfalls, and guidance on future development and testing requirements. The pre-defined data is specified in verification objectives for hardware-in-the-loop, wargame, and flight test and analysis events. Verification objectives are keyed to Test Bed system specification compliance statements to gather data essential to verify the as-built capability. Integration and testing is structured around exercise of specific engagement sequence groups derived from approved BMDS architecture designs. The engagement sequence group approach enables System Engineering, working with the Responsible Test Organization (RTO), to develop detailed test plans. Furthermore, integration and verification at the component and subsystem level permits System Engineering to evaluate technical maturity and component performance contributing to overall BMDS capability. Integration and verification cut horizontally across elements and vertically down through element component development (i.e. radar, missile, launcher, C2BMC) providing important feedback for ensuring time-phased insertion of technologies and capabilities meeting prescribed entrance and exit criteria to the BMDS. MDA employs system-wide tests providing data necessary to conduct extensive modeling and simulation-based analyses to verify and assess BMDS performance against the Test Bed specification and established technical goals and objectives. The results of system level tests and assessments are captured in Capability Verification and Assessment Reports (CVAR). DoD uses CVAR information as inputs for readiness decisions for transitioning and declaring an operational capability available or for development decisions.

The Operational integration function accomplishes the transition of an available defensive capability to the warfighter providing the connection between the system engineering and user. This ensures successful transition of operational BMDS capability. The BMDS user handbooks, maintenance requirements, Concept of Operations (CONOPs), operator and leader training on system performance and operation are key operational integration activities. Through sustaining engineering the SE&I team is providing the warfighter operational support. The SE&I team, through simulations and training exercises obtains feedback from the warfighter necessary to refine system interfaces, CONOPs, maintenance and facilities to enhance system reliability, maintainability, suitability and effectiveness. Operational tests conducted by the RTO are an important data source for lessons learned.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Test Bed Planning	31,264	22,280	18,328	18,329
RDT&E Articles (Quantity)	0	0	0	0

Test Bed planning is a continuous process of assessing and choosing BMDS technical alternatives that can be included in the BMDS Test Bed. The planning process includes the synthesis of emerging technology and concept input, assessment of these concepts against agency metrics and goals using gap analysis and adversary capabilities, production of formal Concept Descriptions

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(CDs), update of associated Engagement Sequence Groups (ESGs), presentation of new concepts and ESGs to the MDA Design Review Board, convening of integrated working groups to coordinate planning and programming efforts, and finally the preparation of the Test Bed Description Document. CDs being evaluated include six concepts for enhanced discrimination and ability to deal with countermeasures, three concepts for enhancing the KEI Element, addition of a Fly-Along-Sensor Package (FASP) as a kill assessment enabler, and concepts for enhancements to particular Element components, such as the 21-inch second stage rocket motor for the SM-3 missile. For the current 06 Test Bed there are 14 ESGs which are ready for transition to available defensive capabilities, and another 31 that are being evaluated. These ESGs are the basis of Element and system-wide improvements to BMDS capability for the next 6 years. Without the definition provided by these ESGs, the interfaces for these developing items would not be defined. Test Bed Planning produces the Test Bed Description Document (TBDD), which is the basis for decision memoranda issued to the Elements by MDA. Test Bed Planning also conducts threat system engineering and lethality assessment to characterize current and emerging threat system performance to ensure BMDS efforts keep pace with threat developments.

FY 2004 Accomplishments:

- Performed Block 08 Gap Analysis comparing Block 06 baseline performance versus Block 08 adversary capabilities
- Performed Block 08 Architecture options analysis to mitigate gaps
- Performed BMDS Technology needs assessment tailored to Block 08 development
- Conducted Block 08 Peer review to coordinate Block 08 proposed architecture with BMDS stakeholders
- Developed and coordinated first set of BMDS Engagement Sequence Groups for BMDS Test Bed focused on evolution planning
- Development and coordination of Adversary Data Packages (ADPs) which included Element characterization of missile systems and countermeasures
- Development of Adversary Capability Document (ACD)
- Provide Adversary Engineering support to System Engineering and Integration Systems Analysis
- Developed, coordinated with Elements, and delivered Block-specific Adversary Data Packages to provide characterization of missile systems and countermeasures to be utilized for system design, analysis, and verification efforts; packages were published for Initial Defensive Capabilities, Block 04 System, Block 06 System, and Block 08 System
- Developed and distributed Adversary Capability Document 5.0 to support availability of detailed missile descriptions, behaviors, and countermeasure capabilities for threat missile systems
- Adversary Engineering support to MDA/SE systems analysis studies and delivery to Project Hercules of countermeasure suite concepts and specifications
- Supported CM/CCM Black Team: delivered Thesis Threat Package and performed CM susceptibility assessments for Elements
- Initiated efforts for obtaining actual post-engagement lethality information through data collection and analysis on BMDS Element and system flight test opportunities
- Provided analysis on dispersion of persistent nerve agents and reported on submunition survivability resulting from a missile engagement
- Initiated lethality data and analysis on chemical/biological agents at altitudes to support BMDS Elements

FY 2005 Planned Accomplishments:

- Update the Technical Objectives and Goals (TOG)
- Continue the development of the Adversary Capability Document and block-specific Adversary Data Packages
- Produce Concept Descriptions and Engagement Sequence Groups for BMDS Test Bed Evolution Planning
- Finalize Test Bed 06 and draft Test Bed 08 Test Bed Description Document (TBDD)
- Facilitate Design Review Boards (DRB)
- Update Test Bed 06 and Test Bed 08 Performance Gap Analysis
- Oversee CM/CCM Program
- Oversee international program and analyze effects on future capability
- Provide critical lethality data and analysis for chemical agents including biological threats with threat representative submunitions and their simulants
- Conduct experiments to investigate properties, breakup, and demise of chemical payloads resulting from terminal phase intercepts

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- Continue effort to obtain actual post-engagement lethality information through data collection and analysis on BMDS Element and system flight test opportunities
- Continue kill assessment investigation and obtaining information on post-impact debris signatures

FY 2006 Planned Program:

- Update the Technical Objectives and Goals (TOG)
- Continue the development of the Adversary Capability Document and block-specific Adversary Data Packages
- Produce Concept Descriptions and Engagement Sequence Groups for BMDS Test Bed Evolution Planning
- Initiate Test Bed 10 Test Bed Description Document
- Facilitate Design Review Boards (DRBs)
- Initiate Test Bed 10 Performance Gap Analysis
- Oversee CM/CCM Program
- Oversee international program and analyze effects on future capability
- Continue effort to provide data and analysis of actual post-engagement lethality information through efforts on BMDS Element and system flight test opportunities
- Continue to provide data and analysis of various chemical agents and their simulants, including non-traditional
- Continue kill assessment investigation and obtaining information on post-impact debris signatures

FY 2007 Planned Program:

- Update the Technical Objectives and Goals (TOG)
- Continue the development of the Adversary Capability Document and block-specific Adversary Data Package's
- Produce Concept Descriptions and Engagement Sequence Groups for BMDS Test Bed Evolution Planning
- Finalize Test Bed10 Test Bed Description Document
- Facilitate Design Review Boards
- Complete Test Bed 10 Performance Gap Analysis
- Oversee CM/CCM Program
- Oversee international program and analyze effects on future capability

	FY 2004	FY 2005	FY 2006	FY 2007
Design & Specification	17,159	16,570	14,521	15,750
RDT&E Articles (Quantity)	0	0	0	0

Design & Specification uses the data developed in the Test Bed Planning process and the existing Element specifications to develop a system specification and interface requirements. Through the system engineering process these specifications/requirements are both allocated to the Elements/subsystems and enable the integration and verification activities.

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FY 2004 Accomplishments:

- Developed the Design and associated Specification and Interface requirements that characterized the IDO configuration.
- Initiated the development of the System Specification and associated interface requirements for the Test Bed 2006 capabilities.
- Refined BMD Core Technical Standards that capture the environmental, design, and construction constraints.

FY 2005 Planned Accomplishments:

- Finalize the Design and associated Specification and Interface requirements for Test Bed 2006 capabilities.
- Initiate the development of the System Specification and associated interface requirements for the Test Bed 2008 capabilities.
- Refine BMD Core Technical Standards that capture the environmental, design, and construction constraints.
- Complete adherence planning for the Test Bed 2006 Core Standards that include waivers and deviations.

FY 2006 Planned Program:

- Finalize the Design and associated Specification and Interface requirements for Test Bed 2008 capabilities.
- Initiated the development of the System Specification and associated interface requirements for the Test Bed 2010 capabilities.
- Refined BMD Core Technical Standards that capture the environmental, design, and construction constraints.
- Complete adherence planning for the Test Bed 2008 Core Standards that include waivers and deviations.

FY 2007 Planned Program:

- Finalize the Design and associated Specification and Interface requirements for Test Bed 2010 capabilities.
- Initiated the development of the System Specification and associated interface requirements for the Test Bed 2012 capabilities.
- Refined BMD Core Technical Standards that capture the environmental, design, and construction constraints.
- Complete adherence planning for the Test Bed 2010 Core Standards that include waivers and deviations.

	FY 2004	FY 2005	FY 2006	FY 2007
Integration & Implementation	15,656	17,102	10,535	11,479
RDT&E Articles (Quantity)	0	0	0	0

Integration and Implementation focuses on the system-level engineering activities needed to successfully combine the individual parts of the Elements, components, and subsystems into one seamless interoperable BMD system. Emphasis is on Element-to-Element interfaces and functionality with cross Element dependencies. Additionally, integration produces tools and products to facilitate the understanding and monitoring of BMDS capabilities by the Combatant Commands.

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FY 2004 Accomplishments:

- Built Draft Master Integration Plan (MIP) for Block 04
- Built initial Block 04 database tool to ensure Element build and integration is consistent with system requirements (PAM)
- Delivered IDO Technical and System Integration documentation to NORTHCOM and STRATCOM to support training and initial defensive operations (e.g. provided source data for BMDS users handbook, OPSCAP/SYSCAP tool, and BMDS top-level drawings)
- Conducted three system-level Design Reviews to support IDO and Block 04
- Updated BMD System Change Process Guide (CPG)
- Published BMD System Configuration Management Plan (CMP)
- Drafted MDA Software Acquisition Plan (SWAP)
- Drafted MDA Software Acquisition Process Framework (MSAPF)
- Drafted MDA Software Readiness Levels (SWRLs) Implementation Guide

FY 2005 Planned Accomplishments:

- Update Block 04 MIP to incorporated new program content
- Conduct Block 04 Integration Design Review
- Conduct Block 04 In-Progress Technical Reviews as needed (estimate at least two)
- Draft Director's Instructions to Elements to Implement Block 04
- Build Block 06 MIP and deliver to Element developers and Test and Verification Communities
- Conduct Block 06 Integration Design Review
- Draft Director's Instructions to Elements to Implement Block 06
- Maintain MIP PAM tool for Block 04 and build integration database for Block 06
- Provide Technical and System Integration documentation to NORTHCOM and STRATCOM to support training and end of Block 04 capability (e.g. provide source data for BMDS users handbook, OPSCAP/SYSCAP tool, and BMDS top-level drawings)
- Track system interfaces and related documentation and provide monthly status

FY 2006 Planned Program:

- Conduct Block 06 In-Progress Technical Reviews as needed (estimate at least two)
- Maintain MIP PAM tool to support Block 06 test, assessment and verification
- Conduct Integration Working Group meetings to resolve Block 06 implementation issues
- Provide Technical and System Integration documentation to NORTHCOM and STRATCOM to support training and early Bock 06 integration; Source Data for BMDS Users Handbook; BMDS top-level Drawings
- Updates to Operational Capability/System Capability tool to reflect current configuration
- Track system interfaces and related documentation and provide status
- Begin advance planning for Block 08 MIP

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FY 2007 Planned Program:

- Conduct Block 06 In-Progress Technical Reviews as needed (estimate at least two)
- Update Block 06 MIP to incorporated new program content
- Build Block 08 MIP and deliver to Element developers and Test and Verification Communities
- Conduct Block 08 Integration Design Review
- Draft Director's Instructions to Elements to Implement Block 08
- Maintain MIP PAM tool for Block 06 and build integration database for Block 08
- Provide Technical and System Integration documentation to PACOM, NORTHCOM and STRATCOM to support training and late Block 06 integration ; Source Data for BMDS Users Handbook; BMDS top-level Drawings
- Track system interfaces and related documentation and provide monthly status

	FY 2004	FY 2005	FY 2006	FY 2007
Verification & Assessment Engineering	13,963	11,710	10,262	11,130
RDT&E Articles (Quantity)	0	0	0	0

Verification and Assessment Engineering defines verification requirements in the Block System Capability Specifications (SCS) and Interface Control Specifications (ICS), assigns verification methods to BMD System level capabilities for the Verification Cross Reference Matrix (VCRM), and develops Block-specific Capability Verification and Assessment Plans. Verification and Assessment Engineering executes verification and assessment plans to evaluate performance against the System Capability Specification to verify the achieved BMDS performance. Assessments are performed against the Technical Objectives and Goals. Results are reported in Capability Verification Assessment Reports for each block iteration.

FY 2004 Accomplishments:

- Developed/Provided Block 04 System Capability Specification verification Cross Reference Matrix update for FBX-T addition
- Developed/Provided Block 06 Test Bed System Specification Verification Cross Reference Matrix (Engineering Baseline)
- Developed/Provided BMD System Test Objectives, including overlays on Element Test Objectives
- Developed Target Capability Specifications/Coordinated with Elements on Revised Target Development Process between MDA/SE and Elements
- Developed/Provided Capability Verification and Assessment Plan (with IDC and Block 04 Annexes)
- Developed IDC Analysis Plans with Modeling and Simulation requirements
- Developed/Provided IDC Capability Verification and Assessment Reports
- Developed/Provided Capability Verification and Assessment Report Addenda for individual test events

FY 2005 Planned Accomplishments:

- Develop/Provide Block 06 Test Bed System Specification Verification Cross Reference Matrix
- Develop/Provide Block 08 Test Bed System Specification Verification Cross Reference Matrix (Engineering Baseline)
- Develop/Provide BMD System Test Objectives, including overlays on Element Test Objectives
- Develop/Update Target Requirements

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- Update Block 04 Capability Verification and Assessment Plan Annex
- Develop/Provide Block 06 Capability Verification and Assessment Plan Annex
- Develop Final Block 04 Verification Analysis Plans with Modeling and Simulation (M&S) requirements
- Develop Block 06 Analysis Plan with Modeling and Simulation requirements
- Develop/Provide Capability Verification and Assessment Reports
- Develop/Provide Capability Verification and Assessment Report Addenda for individual test events

FY 2006 Planned Program:

- Develop/Provide Block 08 Test Bed System Specification Verification Cross Reference Matrix
- Develop/Provide BMD System Test Objectives, including overlays on Element Test Objectives
- Develop/Update Target Requirements
- Update Block 06 Capability Verification and Assessment Plan Annex
- Develop/Provide Draft Block 08 Capability Verification and Assessment Plan Annex
- Develop Final Block 06 Verification Analysis Plans with Modeling and Simulation requirements
- Develop Block 08 Analysis Plan with Modeling and Simulation requirements
- Develop/Provide Capability Verification and Assessment Reports
- Develop/Provide Capability Verification and Assessment Report Addenda for individual test events

FY 2007 Planned Program:

- Develop/Provide Block 10 Test Bed System Specification Verification Cross Reference Matrix (Engineering Baseline)
- Verification Ledger (DOORS-based)
- Develop/Provide BMD System Test Objectives, including overlays on Element Test Objectives
- Develop/Update Target Requirements
- Update Block 06 Capability Verification and Assessment Plan Annex
- Develop/Provide Block 08 Capability Verification and Assessment Plan Annex
- Develop Block 10 Capability Verification and Assessment Plan Annex
- Develop Final Block 08 Verification Analysis Plans with Modeling and Simulation requirements
- Develop Block 10 Analysis Plan with Modeling and Simulation requirements
- Develop/Provide Capability Verification and Assessment Reports
- Develop/Provide Capability Verification and Assessment Report Addenda for individual test events

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	FY 2004	FY 2005	FY 2006	FY 2007
System Assessment and Analysis Engineering	25,302	20,480	17,949	17,967
RDT&E Articles (Quantity)	0	0	0	0

Systems Assessment and Analysis maintains the technical staff and tools supporting a wide range of analysis needs including test bed engineering and architecture, effectiveness assessments and gap analysis. These analysis efforts also examine and respond to specific questions of feasibility and assessment from senior management.

FY 2004 Accomplishments:

- Conducted architecture analyses to support development of Technical Objectives and Goals, Test Bed Description Documents, System Specifications, Interface Control Documents, System Implementation Plan, Capabilities Verification and Assessment Plan, and the Capabilities Verification and Assessment Report
- Conducted engineering analyses and perform trade studies for system design and implementation products to include System Specification, Interface Control Documents, Target Capabilities Specification, Information Exchange Requirements and Design Parameters Experiments
- Conducted Quick reaction analyses in support of ACD, CONOPS Development, BMDS Handbook
- Developed and maintain the Element/Component Characterization Analysis and the analysis knowledge base
- Developed models and simulation requirements for submission in the MDA model and simulation process

FY 2005 Planned Accomplishments:

- Conduct architecture analyses to support development of Technical Objectives and Goals, Test Bed Description Documents, System Specifications, Interface Control, System Implementation Plan, Capabilities Verification and Assessment Plan, and the Capabilities Verification and Assessment Report
- Conduct engineering analyses and perform trade studies for system design and implementation products to include System Specification, Interface Control, Target Capabilities Specification, Information Exchange Requirements and Design Parameters Experiments
- Conduct Quick reaction analyses in support of ACD, CONOPS Development, BMDS Handbook
- Develop and maintain the Element/Component Characterization Analysis and the analysis knowledge base
- Develop models and simulation requirements for submission in the MDA model and simulation process

FY 2006 Planned Program:

- Conduct architecture analyses to support development of Technical Objectives and Goals, Test Bed Description Documents, System Specifications, Interface Control, System Implementation Plan, Capabilities Verification and Assessment Plan, and the Capabilities Verification and Assessment Report
- Conduct engineering analyses and perform trade studies for system design and implementation products to include System Specification, Interface Control, Target Capabilities Specification, Information Exchange Requirements and Design Parameters Experiments
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FY 2007 Planned Program:

- Conduct architecture analyses to support development of Technical Objectives and Goals, Test Bed Description Documents, System Specifications, Interface Control, System Implementation Plan, Capabilities Verification and Assessment Plan, and the Capabilities Verification and Assessment Report
- Conduct engineering analyses and perform trade studies for system design and implementation products to include System Specification, Interface Control, Target Capabilities Specification, Information Exchange Requirements and Design Parameters Experiments
- Conduct Quick reaction analyses in support of ACD, CONOPS Development, BMDS Handbook
- Develop and maintain the Element/Component Characterization Analysis and the analysis knowledge base
- Develop models and simulation requirements for submission in the MDA model and simulation process

	FY 2004	FY 2005	FY 2006	FY 2007
Program Control	65,974	52,747	40,387	40,400
RDT&E Articles (Quantity)	0	0	0	0

Program Management and Control provides overall program operations support to Missile Defense Agency Systems Engineering to include planning, programming, budgeting and execution (PPBE), contract management, correspondence, information and document management, policy and procedures, security, and government human relations functions. Risk Management provides common expert services to MDA to include technical and program risk assessment, gap analysis, and risk and performance planning and management.

FY 2004 Accomplishments:

- Develop and maintain the BMD System Risk Management Plan
- Provide administrative support for MDA/SE staff and manage formal correspondence
- Project program management and control
- Maintain Integrated Master Schedule for System Engineering products in concert with the overall Missile Defense Agency Integrated Master Plan/Schedule
- Maintain information library of all official engineering documents and briefings
- Manage personnel and MDA site and information security
- Perform contracting officer's representative functions for all project support functions including contract cost oversight
- Manage the project budget
- Provide input to support MDA BRAC submissions

FY 2005 Planned Accomplishments:

- Maintain the BMD System Risk Management Plan
- Provide administrative support for MDA/SE staff and manage formal correspondence
- Project program management and control
- Maintain Integrated Master Schedule for System Engineering products in concert with the overall Missile Defense Agency Integrated Master Plan/Schedule
- Maintain information library of all official engineering documents and briefings
- Manage personnel and MDA site and information security

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- Perform contracting officer's representative functions for all project support functions including contract cost oversight
- Manage the project budget
- Launch a comprehensive collaboration strategy to ensure appropriate participation of Agency product and service stakeholders

FY 2006 Planned Program:

- Maintain the BMD SYSTEM Risk Management Plan and provide annual BMDS Block Technical Performance Risk Summary
- Administer MDA National Team contract renewal (10 year contract, renewed every 2 years)
- Upgrade Test Bed Information sharing for both classified and unclassified environments ensuring timely access for all authorized users
- Implement robust collaboration support system to enable desktop planning and technical coordination throughout the enterprise
- Project program management and control
- Maintain Integrated Master Schedule for System Engineering products in concert with the overall Missile Defense Agency Integrated Master Plan/Schedule
- Maintain information library of all official engineering documents and briefings
- Manage personnel and MDA site and information security
- Perform contracting officer's representative functions for all project support functions including contract cost oversight

FY 2007 Planned Program:

- Maintain the BMD SYSTEM Risk Management Plan and draft annual BMDS Block Technical Performance Risk Summary
- Administer Award-fee plan determination and process self-assessments
- Implement consistent task management across all programs and contracts including performance indicators and regular reporting
- Project program management and control
- Maintain Integrated Master Schedule for System Engineering products in concert with the overall Missile Defense Agency Integrated Master Plan/Schedule
- Maintain information library of all official engineering documents and briefings
- Manage personnel and MDA site and information security
- Perform contracting officer's representative functions for all project support functions including contract cost oversight

	FY 2004	FY 2005	FY 2006	FY 2007
Operational Integration & Support	0	920	808	824
RDT&E Articles (Quantity)	0	0	0	0

The Operational Integration and Support team provides the link between the warfighting community and the SE&I team before, during and after transition of Available Defensive Capability. This activity provides sustaining engineering services for support, training, operation and sustainment of BMDS capabilities. It collects, analyzes, and disseminates user input and feedback on the BMDS for incorporation into the collaborative Systems Engineering (SE) process by supporting Force Structure Integration and Deployment.

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FY 2004 Accomplishment:

- The Operational Integration and Support Branch was conceptualized and initiated.

FY 2005 Planned Accomplishments:

- Support the Initial Defensive Operations (IDO) Task Force through the remainder of Block 04
- Support Concept of Operations (CONOPS) development
- Represent the systems engineering interfaces in the Warfighter Involvement Process (WIP) developed by USSTRATCOM
- Support warfighter surveys to collect and disseminate user input and feedback on the BMDS for incorporation into the collaborative SE process
- Support Force Structure Integration and Deployment by working with Combatant Commanders (COCOMs) in focus groups or integrated process teams involving BMDS SE issues
- Communicate SE concepts and analysis to users and stakeholders
- Manage operational system configuration control
- Participate in BMDS Handbook updates and act as a SE liaison for training tools
- Participate in the Joint Warfighter Support program and act as a SE liaison for joint or service exercises, wargames, and seminars

FY 2006 Planned Program:

- Serve as a focal point for SE actions compiled by the MDA Operations Center (MOC)
- Support Concept of Operations (CONOPS) updates
- Represent the systems engineering interfaces in the Warfighter Involvement Process (WIP) developed by USSTRATCOM
- Support warfighter surveys to collect and disseminate user input and feedback on the BMDS for incorporation into the collaborative SE process
- Support Force Structure Integration and Deployment by working with Combatant Commanders (COCOMs) in focus groups or integrated process teams involving BMDS SE issues
- Communicate SE concepts and analysis to users and stakeholders.
- Manage operational system configuration control
- Participate in BMDS Handbook updates and act as a SE liaison for training tools
- Participate in the Joint Warfighter Support program and act as a SE liaison for joint or service exercises, wargames, and seminars

FY 2007 Planned Program:

- Serve as a focal point for SE actions compiled by the MDA Operations Center (MOC)
- Support Concept of Operations (CONOPS) updates
- Represent the systems engineering interfaces in the Warfighter Involvement Process (WIP) developed by USSTRATCOM
- Support warfighter surveys to collect and disseminate user input and feedback on the BMDS for incorporation into the collaborative SE process
- Support Force Structure Integration and Deployment by working with Combatant Commanders (COCOMs) in focus groups or integrated process teams involving BMDS SE issues
- Communicate SE concepts and analysis to users and stakeholders
- Manage operational system configuration control
- Participate in BMDS Handbook updates and act as a SE liaison for training tools
- Participate in the Joint Warfighter Support program and act as a SE liaison for joint or service exercises, wargames, and seminars

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	FY 2004	FY 2005	FY 2006	FY 2007
Modeling & Simulation Engineering	102,598	99,484	0	0
RDT&E Articles (Quantity)	0	0	0	0

Note: FY 2006 - FY 2011 funding for this effort will be captured under Project 0106 in BMD System Core PE 0603890C.

In order to strengthen the Agency's Modeling and Simulation (M&S) program, a significant effort leveraging existing element models, linked and integrated at the system-level and oriented to support future development of the BMDS, is essential. Legacy models and simulations will address near-term IDO and Block 04 objectives and provide warfighter support and sustainment for BMDS. For Block 06 and beyond, an open architecture model will assess overall BMDS performance and quality, train and operate at the system-level, and improve the BMDS through incremental improvements and Block upgrades over time.

FY 2004 Accomplishments:

- Developed Monthly Technical, Cost and Schedule Reports
- Released Parametric Endo-Exo Lethality Simulation (PEELS): Version 10.1
- Released Post Engagement Ground Effects Model (PEGEM): Version 5.1
- Released Kinetic Impact Debris Distribution (KIDD): Version 5.1
- Released CT-Analyst: Version 2
- Released EADSIM v11, THAAD Representation Benchmark for JPOW8 Wargame
- Released BEST R1.1 accepted by Gov and currently in Beta-Test by selected participants from the BMD user community
- Released Commanders Analysis and Planning Simulation (CAPS) v 8.0, International Version
- Released Missile Defense Wargame (MDWAR) v 4.3 , 5.0, 5.1

FY 2005 Planned Accomplishments:

- Initiate and complete Model Assessments
- Define Framework for Common Environment and Threat Model (CETM) for all Sim Types
- Define and Develop SIM Type 1 Simulation (Mission Effects) for Planning and Integration of BMDS With Other Warfighting Mission Areas
- Define Criteria for Accuracy/Detail per Sim Type
- Assess Existing Threat and Environment Tools
- Plan, Build and Integrate CETM Version 1.0
- Developed Monthly Technical, Cost and Schedule Reports
- Release Parametric Endo-Exo Lethality Simulation (PEELS): Version 10.2, 11.0
- Release Post Engagement Ground Effects Model (PEGEM): Version 5.2, 6.0
- Release Kinetic Impact Debris Distribution (KIDD): Version 5.6, 6.0
- Release Performance Assessment Workbench Software (PAWS): Version 2.0, 3.0
- Release CT-Analyst: Version 3
- Release EADSIM v12, THAAD Representation Accreditation to support Wargames
- Release Next Generation Flowfield Solver
- Release FLITES

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

- Release Strategic Scene Generation Model (SSGM) 99.4
- Release Commanders Analysis and Planning Simulation (CAPS) v 9.0 and 9.1
- Release Missile Defense Wargame (MDWAR) v 5.2, 6.0, 6.1

C. Other Program Funding Summary

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	226,765	231,145	136,241	184,877	197,229	205,191	212,435	218,763	1,612,646
PE 0603879C Advanced Concepts, Evaluations and Systems	132,701	159,878	0	0	0	0	0	0	292,579
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	860,794	928,388	1,143,610	1,034,676	879,674	617,319	731,282	485,512	6,681,255
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3,731,708	4,521,019	3,266,196	3,945,991	3,650,848	3,315,513	3,183,622	2,545,882	28,160,779
PE 0603883C Ballistic Missile Defense Boost Defense Segment	475,911	476,179	483,863	648,728	620,793	690,807	811,430	1,183,182	5,390,893
PE 0603884C Ballistic Missile Defense Sensors	417,814	577,297	529,829	995,711	1,214,008	1,186,134	1,069,208	1,018,614	7,008,615
PE 0603886C Ballistic Missile Defense System Interceptors	114,669	279,815	229,658	444,900	677,243	1,137,337	1,468,827	1,717,507	6,069,956
PE 0603888C Ballistic Missile Defense Test and Targets	616,773	720,818	622,357	684,170	608,282	643,119	661,362	670,092	5,226,973
PE 0603889C Ballistic Missile Defense Products	309,949	383,830	455,152	509,982	509,161	516,599	516,017	515,729	3,716,419
PE 0603890C Ballistic Missile Defense System Core	449,747	399,829	447,006	538,442	532,412	530,934	520,679	531,832	3,950,881
PE 0603891C Special Programs - MDA	0	0	349,522	482,903	826,173	1,097,252	1,015,198	1,244,072	5,015,120
PE 0605502C Small Business Innovative Research - MDA	146,030	0	0	0	0	0	0	0	146,030
PE 0901585C Pentagon Reservation	16,251	13,761	17,386	15,586	6,058	6,376	4,490	4,725	84,633
PE 0901598C Management Headquarters - MDA	92,100	113,777	99,327	95,443	98,984	98,728	81,492	81,760	761,611
Air Force – Other Procurement	0	0	2,400	1,453	11,279	386	17,710	25,709	58,937
Air Force – Operations and Maintenance	0	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
Air Force – Military Personnel	0	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
Army – Operations and Maintenance	37,600	49,597	66,974	68,246	69,809	71,472	73,325	75,230	512,253
Army National Guard – Operations and Maintenance	0	0	155	151	150	154	164	167	941
Army National Guard – Military Personnel	21,000	21,000	17,648	24,432	24,952	25,591	25,591	25,591	185,805
Navy – Operations and Maintenance	0	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PAC-3/MEADS – RDT&E	433,728	344,978	304,973	336,959	465,395	521,791	522,418	502,961	3,433,203
PAC-3/MEADS – Missile Procurement	841,964	574,972	581,924	578,579	660,584	616,020	509,032	738,679	5,101,754

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

D. Acquisition Strategy

SE&I will provide an integrated and layered BMD System architecture, develop block technical definitions, develop element requirements, schedules, verification strategies and other products required to execute the BMD System program. In order to develop and deliver an integrated BMD System that accomplishes its mission and addresses these challenges, MDA employs a collaborative, system-centric, capability-based BMDS Test Bed Engineering process that spans many functions and organizations across MDA including System Engineering and Integration (SE&I); Test and Evaluation; and the Element programs System Engineers. The transition to a BMD System is performed by a team of Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), System Engineering and Technical Assistance (SETA), and industry contractors. This combination of resources forms an integrated team to accomplish necessary engineering for the BMD System. The MDA Systems Engineering Director is supported by functional work groups and an advisory group overseeing specific cross cutting functions. Program Control and Cost & Investment Engineering provide administrative, program management and financial services to Functional Groups and interfaces to other MDA organizations. The strategy is for the engineering team is to ensure successful development of the BMD System through system definition & analyses, capability allocation, block integration, and verification. The organizational construct of the team, applies industrial structures to missile defense while complying with governmental acquisition regulations.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Product Development										

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Test Bed Planning										
Industry	CPAF	Boeing/ VA	2,972	2,300	1/3Q	2,016	1/3Q	2,016	1/3Q	9,304
SETA	CPFF	Sparta/ VA	5,950	4,970	3Q	4,356	1/3Q	4,356	1/3Q	19,632
SETA	CPFF	CSC/ VA	3,332	4,860	3Q	4,259	1/3Q	4,259	1/3Q	16,710
SETA	CPFF	Anteon/ VA	0	920	3Q	806	1/3Q	806	1/3Q	2,532
Other DoD	MIPR	NSWC/ VA	2,200	710	1/3Q	622	1/3Q	622	1/3Q	4,154
Other DoD		SMDC/ AL	4,525	975	1/3Q	854	1/3Q	854	1/3Q	7,208
Other DoD	MIPR	Battelle/ OH	3,350	2,205	1/3Q	1,932	1/3Q	1,932	1/3Q	9,419
Other DoD		Air Force	1,000	275	1/3Q	241	1/3Q	241	1/3Q	1,757
Other DoD		SBCCOM/ MD	75	75	1/3Q	66	1/3Q	66	1/3Q	282
Other DoD	MIPR	Aegis/ VA	1,550	0	N/A	0	N/A	0	N/A	1,550
Design & Specification										

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Industry	CPAF	Boeing/ VA	10,782	11,730	1/3Q	10,280	1/3Q	11,150	1/3Q	43,942
SETA	CPFF	Sparta/ VA	1,930	1,610	3Q	1,411	1/3Q	1,530	1/3Q	6,481
SETA	CPFF	CSC/ VA	1,292	1,680	3Q	1,472	1/3Q	1,597	1/3Q	6,041
Integration & Implementation										
Industry	CPAF	Boeing/ VA	10,247	8,050	1/3Q	7,055	1/3Q	7,651	1/3Q	33,003
SETA	CPFF	Sparta/ VA	2,214	3,258	3Q	1,499	1/3Q	1,652	1/3Q	8,623
SETA	CPFF	CSC/ VA	1,840	2,681	3Q	1,709	1/3Q	1,881	1/3Q	8,111
Other DoD	MIPR	Spawar/ CA	300	0	N/A	0	N/A	0	N/A	300
Other DoD		SMDC/ AL	40	40	1/3Q	0	N/A	0	N/A	80
Other DoD		Air Force	25	0	N/A	0	N/A	0	N/A	25
Other DoD		MDA Elements	0	1,498	1/3Q	0	N/A	0	N/A	1,498
Verification & Assessment Engineering										
Industry	CPAF	Boeing/ VA	7,271	6,210	1/3Q	5,442	1/3Q	5,902	1/3Q	24,825
SETA	CPFF	Sparta/ VA	953	1,380	3Q	1,209	1/3Q	1,312	1/3Q	4,854
SETA	CPFF	CSC/ VA	2,506	2,880	3Q	2,524	1/3Q	2,737	1/3Q	10,647
SETA	MIPR	NSWC/Crane/ IN	1,000	0	N/A	0	N/A	0	N/A	1,000

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Other DoD		JNIC/ CO	1,000	0	N/A	0	N/A	0	N/A	1,000
System Assessment and Analysis Engineering										
Industry	CPAF	Boeing/ VA	13,491	4,830	1/3Q	4,233	1/3Q	4,235	1/3Q	26,789
SETA	CPFF	Sparta/ VA	6,839	10,120	3Q	8,869	1/3Q	8,873	1/3Q	34,701
SETA	CPFF	CSC/ VA	2,788	3,360	3Q	2,945	1/3Q	2,946	1/3Q	12,039
Other DoD		SMDC/ AL	20	0	N/A	0	N/A	0	N/A	20
Other DoD		MDA Elements/ VA	130	0	N/A	0	N/A	0	N/A	130
SETA		Booz Allen & Hamilton/ VA	225	0	N/A	0	N/A	0	N/A	225
Program Control										
		UK Mod/ UK	1,079	0	N/A	0	N/A	0	N/A	1,079
Operational Integration & Support										
SETA	CPFF	Anteon/ VA	0	460	3Q	404	1/3Q	412	1/3Q	1,276
SETA	CPFF	Sparta/ VA	0	460	3Q	404	1/3Q	412	1/3Q	1,276
Modeling & Simulation Engineering										

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
M&S Tools	CPAF	Northrop Grumman/ JNIC/CO	0	10,077	1/2Q	0	N/A	0	N/A	10,077
M&S Tools	TM	DSI/ GSA/LA	0	2,573	1/2Q	0	N/A	0	N/A	2,573
M&S Tools	CPAF	Teledyne Brown Eng PEO AMSD/ AL	0	4,500	1/4Q	0	N/A	0	N/A	4,500
M&S Tools	CPAF	PEO AMSD/ AL	12,266	800	1/4Q	0	N/A	0	N/A	13,066
M&S Tools	CPAF	JTAGS PEO AMSD/ AL	0	565	1/4Q	0	N/A	0	N/A	565
M&S Tools	Various	SBIRS/MCS/ Air Force	3,033	400	1/4Q	0	N/A	0	N/A	3,433
M&S Tools	Various	JNIC/ CO	19,635	600	1/4Q	0	N/A	0	N/A	20,235
M&S Tools	MIPR	GMD/ AL	0	800	2/4Q	0	N/A	0	N/A	800
M&S Tools	MIPR	SPAWAR/ CA	2,576	1,750	1/2Q	0	N/A	0	N/A	4,326
M&S Tools	Various	USA NET Design Facility/ PEO ASMD, AL	0	500	2/4Q	0	N/A	0	N/A	500
M&S Tools	MIPR	THAAD/ AL	0	1,800	1/2Q	0	N/A	0	N/A	1,800
M&S Tools	CPAF	Lockheed Martin/ PA	0	2,000	1/4Q	0	N/A	0	N/A	2,000
M&S Tools	Various	Patriot	0	450	1/4Q	0	N/A	0	N/A	450

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
M&S Tools	MIPR	FBX-T/ VA	0	800	2/4Q	0	N/A	0	N/A	800
M&S Tools	MIPR	Photon Research Assoc/ VA	4,800	5,900	1/3Q	0	N/A	0	N/A	10,700
M&S Tools	CPFF	NLR/ DC	0	2,300	1/2Q	0	N/A	0	N/A	2,300
M&S Tools	CPFF	AFRL-PR/ CA	0	800	1/2Q	0	N/A	0	N/A	800
M&S Tools	CPFF	SMDC/ AL	21,228	600	1/2Q	0	N/A	0	N/A	21,828
M&S Tools	CPFF	AFRL-VS/ MA	0	200	1/2Q	0	N/A	0	N/A	200
M&S Tools	CPFF	AFRL-MN/ FL	0	100	1/2Q	0	N/A	0	N/A	100
M&S Tools	CPFF	AFRL-SN/ OH	0	100	1/2Q	0	N/A	0	N/A	100
M&S Tools	MIPR	NASIC/ OH	0	200	1/2Q	0	N/A	0	N/A	200
M&S Tools	MIPR	MSIC/ AL	0	200	1/2Q	0	N/A	0	N/A	200
M&S Tools	FFP	SPARTA/ CA	243	51	1Q	0	N/A	0	N/A	294
M&S Tools	CPIF	Teledyne Brown Eng SMDC/ AL	0	1,840	1/2Q	0	N/A	0	N/A	1,840
M&S Tools	MIPR	ITT GSA/ GA	1,050	2,215	1/2Q	0	N/A	0	N/A	3,265
M&S Tools	FFP	CSC SMDC/ GA	0	860	1/2Q	0	N/A	0	N/A	860

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
M&S Tools	FFP	Dynetics SMDC/ GA	0	250	1/2Q	0	N/A	0	N/A	250
M&S Tools	MIPR	Miltec GSA/ GA	350	875	1/2Q	0	N/A	0	N/A	1,225
M&S Tools	MIPR	BAE GSA/ GA	1,229	1,540	1/2Q	0	N/A	0	N/A	2,769
M&S Tools		NRL/ VA	0	475	1/2Q	0	N/A	0	N/A	475
M&S Framework	CPAF	TBD	0	20,163	2/4Q	0	N/A	0	N/A	20,163
M&S Tools		DSI, GSA/ AL	0	295	1/2Q	0	N/A	0	N/A	295
M&S Tools	CPIF	Teledyne Brown Engineering, SMDC/ AL	0	300	1/2Q	0	N/A	0	N/A	300
M&S Tools	MIPR	Sparta/ VA	0	380	1/3Q	0	N/A	0	N/A	380
Computational Facilities		Various/ VA	0	23,429	1/2Q	0	N/A	0	N/A	23,429
SETA		Booze Allen/ VA	6,335	0	N/A	0	N/A	0	N/A	6,335
Other DoD	MIPR	Navy	2,812	0	N/A	0	N/A	0	N/A	2,812
Industry		Boeing/ AL	2,331	0	N/A	0	N/A	0	N/A	2,331
Other DoD		Aegis/ VA	2,995	0	N/A	0	N/A	0	N/A	2,995
Subtotal Support Costs			171,809	168,225		64,608		67,442		472,084

Remarks

- FY06-11 funding for Modeling and Simulation Engineering is captured under the Ballistic Missile Defense System (BMDS), Program Element 0603890C, Project 0106
- SETA Recompete 3Q FY05
- M&S Framework category represents funding for the Block 06 common M&S framework for all system level models, which will model the entire BMDS for all venues.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										

Remarks

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Test Bed Planning										
FFRDC/UARC/DoE Labs	FFRDC	Various	4,734	4,990	1/3Q	3,176	1/3Q	3,177	1/3Q	16,077
Design & Specification										
FFRDC/UARC/DoE Labs	FFRDC	Various	1,011	1,550	1/3Q	1,358	1/3Q	1,473	1/3Q	5,392
Integration & Implementation										
FFRDC/UARC/DoE Labs	FFRDC	Various	529	1,125	1/3Q	272	1/3Q	295	1/3Q	2,221
Gov`t Personnel		SMDC/ Huntsville, AL	450	450	2Q	0	N/A	0	N/A	900
Gov`t Personnel		Air Force	12	0	N/A	0	N/A	0	N/A	12
Verification & Assessment Engineering										
FFRDC/UARC/DoE Labs	FFRDC	Various	1,253	1,240	1/3Q	1,087	1/3Q	1,179	1/3Q	4,759
System Assessment and Analysis Engineering										
FFRDC/UARC/DoE Labs	FFRDC	Various	1,809	2,170	1/3Q	1,902	1/3Q	1,913	1/3Q	7,794
Program Control										
Industry	CPAF	Boeing/ VA	36,032	35,465	1/3Q	26,244	1/3Q	26,210	1/3Q	123,951

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
SETA	CPFF	Sparta/ VA	3,917	3,450	3Q	2,520	1/3Q	2,517	1/3Q	12,404
SETA	CPFF	CSC/ VA	3,774	2,400	3Q	1,753	1/3Q	1,751	1/3Q	9,678
FFRDC/UARC/DoE Labs	FFRDC	Various	2,484	4,429	1/3Q	3,329	1/3Q	3,328	1/3Q	13,570
Gov`t Personnel		WHS// DC	16,112	4,700	2Q	4,797	2Q	4,890	2Q	30,499
Travel			1,737	598	2/4Q	499	2/4Q	460	2/4Q	3,294
SETA	CPFF	Anteon/ VA	2,803	1,610	3Q	1,176	1/3Q	1,175	1/3Q	6,764
SETA	FFP	Paradigm/ VA	95	95	3Q	69	1/3Q	69	1/3Q	328
SETA		AMSAM	85	0	N/A	0	N/A	0	N/A	85
Modeling & Simulation Engineering										
SETA	FFP	MDA/ VA	662	2,148	1/3Q	0	N/A	0	N/A	2,810
FFRDC/UARCs and other govt labs	FFRDC	JHU/APL/ MD	885	3,160	1/2Q	0	N/A	0	N/A	4,045
FFRDC/UARCs and other govt labs	FFRDC	Aerospace/ CA	160	320	1/2Q	0	N/A	0	N/A	480
FFRDC/UARCs and other govt labs	FFRDC	MIT/LL/ MA	250	540	1/2Q	0	N/A	0	N/A	790
FFRDC/UARCs and other govt labs	FFRDC	MITRE/ VA	300	920	1/2Q	0	N/A	0	N/A	1,220
FFRDC/UARCs and other govt labs	FFRDC	Torch Technologies/ VA	0	58	1/2Q	0	N/A	0	N/A	58
Gov`t Personnel		MDA/ VA	1,400	1,500	2Q	0	N/A	0	N/A	2,900

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Travel			150	150	2Q	0	N/A	0	N/A	300
Subtotal Management Services			80,644	73,068		48,182		48,437		250,331

Remarks

FY06-11 funding for Modeling and Simulation Engineering is captured under the Ballistic Missile Defense System (BMDS), Program Element 0603890C, Project 0106

SETA Recompete 3Q FY05

Project Total Cost			252,453	241,293		112,790		115,879		722,415

Remarks

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	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
Milestones																																
Technical Objectives & Goals / Updates							△								△								△							△		
Adversary Capability Document/updates		▲						△				△				△				△				△				△				△
Adversary Data Package	▲	▲	▲	▲			△		△		△		△		△		△		△		△		△		△		△		△		△	
Lethality Data Update		▲				△				△				△				△				△				△				△		
Initial Defensive Operations																																
Capability Verification and Assessment Plan			▲																													
IDC/Block 04 Interface Control Specifications	▲																															
IDO Capability Verification & Assessment Report	▲			▲			△																									
BLOCK 2004																																
System Specifications			▲																													
Interface Control Specifications				▲																												
Master Integration Plan draft/final				▲	▲																											
Capability Verification and Assessment Plan/update			▲			△	△																									
Capability Verification and Assessment Report									△		△																					
BLOCK 2006																																
Test Bed Description Document (TBDD)						△																										
System Specifications			▲	▲		△																										
Interface Control Specifications						△																										
Master Integration Plan final						△																										
Capability Verification and Assessment Plan/update						△			△																							
Capability Verification and Assessment Report													△		△		△		△													

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

Date
February 2005

APPROPRIATION/BUDGET ACTIVITY
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)

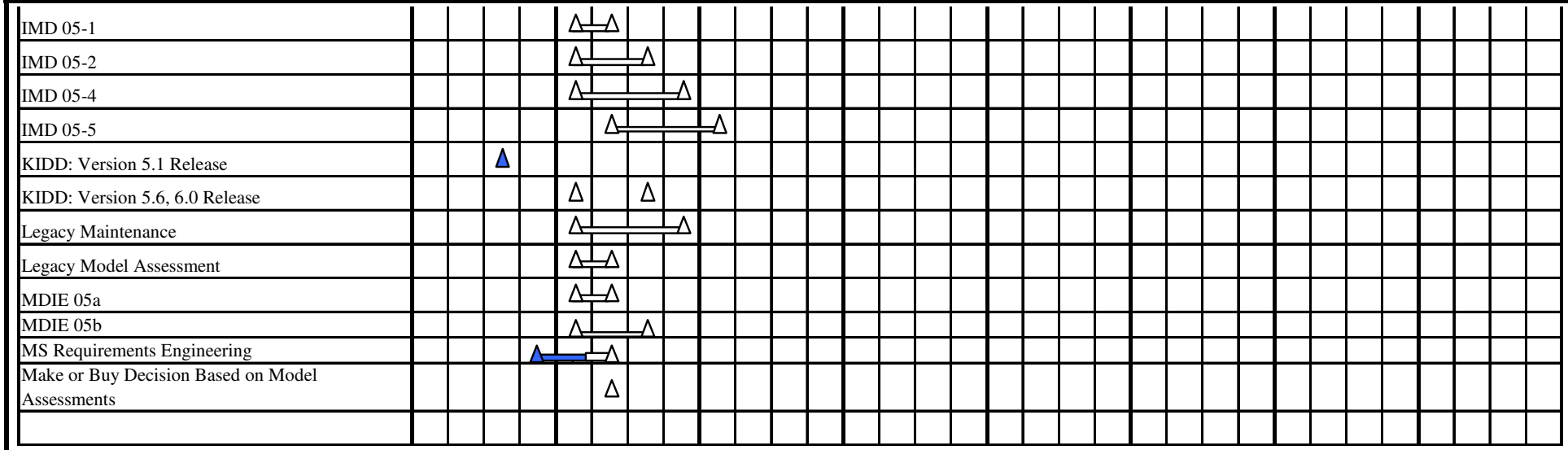
R-1 NOMENCLATURE
0603890C Ballistic Missile Defense System Core

Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	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
BLOCK 2008																																
Test Bed Description Document (TBDD)						Δ																										
System Specifications							Δ																									
Interface Control Specifications								Δ																								
Master Integration Plan final														Δ																		
Capability Verification and Assessment Plan/update													Δ				Δ															
Capability Verification and Assessment Report																					Δ		Δ		Δ		Δ					
Block 2010																																
Test Bed Description Document (TBDD)													Δ																			
System Specifications															Δ																	
Interface Control Specifications																Δ																
Master Integration Plan																						Δ										
Capability Verification and Assessment Plan/update																	Δ				Δ				Δ							
Capability Verification and Assessment Report																															Δ		Δ	
Block 2012																																
Capability Verification and Assessment Plan/update																					Δ				Δ				Δ			
Interface Control Specifications																			Δ													
Master Integration Plan																														Δ		
System Specifications																		Δ														
Test Bed Description Document (TBDD)																Δ																

Project: 0101 Systems Engineering & Integration

MDA Exhibit R-4 (PE 0603890C)

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date **February 2005**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Milestones								
Technical Objectives & Goals / Updates		3Q		3Q		3Q		3Q
Adversary Capability Document/updates	2Q	4Q	4Q	4Q	4Q	4Q	4Q	4Q
Adversary Data Package	1Q,2Q,3Q,4Q	3Q	1Q,3Q	1Q,3Q	1Q,3Q	1Q,3Q	1Q,3Q	1Q,3Q
Lethality Data Update	2Q	2Q	2Q	2Q	2Q	2Q	2Q	2Q
Initial Defensive Operations								
Capability Verification and Assessment Plan	3Q							
IDC/Block 04 Interface Control Specifications	1Q							
IDO Capability Verification & Assessment Report	1Q,4Q	3Q						
BLOCK 2004								
System Specifications	3Q							
Interface Control Specifications	4Q							
Master Integration Plan draft/final	4Q	1Q						
Capability Verification and Assessment Plan/update	3Q	2Q,3Q						
Capability Verification and Assessment Report			1Q,3Q					
BLOCK 2006								
Test Bed Description Document (TBDD)		2Q						
System Specifications	3Q,4Q	2Q						
Interface Control Specifications	4Q	2Q						
Master Integration Plan final		2Q						
Capability Verification and Assessment Plan/update		2Q	1Q					
Capability Verification and Assessment Report				1Q,3Q	1Q,3Q			
BLOCK 2008								
Test Bed Description Document (TBDD)		2Q						
System Specifications		3Q						
Interface Control Specifications		4Q						
Master Integration Plan final				2Q				
Capability Verification and Assessment Plan/update				1Q	1Q			
Capability Verification and Assessment Report						1Q,3Q	1Q,3Q	
Block 2010								
Test Bed Description Document (TBDD)				1Q				
System Specifications				3Q				

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Interface Control Specifications				4Q				
Master Integration Plan						2Q		
Capability Verification and Assessment Plan/update					1Q	1Q	1Q	
Capability Verification and Assessment Report								1Q,3Q
Block 2012								
Capability Verification and Assessment Plan/update						1Q	1Q	1Q
Interface Control Specifications					3Q			
Master Integration Plan								2Q
System Specifications					2Q			
Test Bed Description Document (TBDD)				4Q				
Modeling and Simulation								
Analysis Event 1		1Q-2Q						
Analysis Event 2		1Q-4Q						
BEST R1.1	4Q							
CT-Analyst: Version 2	2Q							
CT-Analyst: Version 3		2Q						
Develop T1, T2, T3, and CETM		2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q			
EADSIM v11	1Q							
EADSIM v12		1Q						
FLITES		2Q						
IMD 05-1		1Q-2Q						
IMD 05-2		1Q-3Q						
IMD 05-4		1Q-4Q						
IMD 05-5		2Q-4Q	1Q					
KIDD: Version 5.1 Release	3Q							
KIDD: Version 5.6, 6.0 Release		1Q,3Q						
Legacy Maintenance		1Q-4Q						
Legacy Model Assessment		1Q-2Q						
MDIE 05a		1Q-2Q						
MDIE 05b		1Q-3Q						
MS Requirements Engineering	4Q	1Q-3Q,2Q						
Make or Buy Decision Based on Model Assessments		2Q						

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Software								
Block 04 Software Acquisition Program	4Q							
Virtual Model/updates	4Q	2Q,4Q	2Q,4Q	2Q,4Q	2Q,4Q	2Q,4Q	2Q,4Q	2Q,4Q
Studies & Analyses								
2004 Summer Study	3Q-4Q							
3rd GBI Site Analysis Decision	3Q-4Q							
Advanced Concepts Studies	1Q-4Q							
Block 06 SCS Review	3Q							
Block 2006 / 2008 Development Reviews	1Q-4Q	1Q-2Q						
Block 2006 Baseline Analysis	3Q-4Q							
Block 2008 / 2010 Baseline Review	1Q							
Block 2008 Peer Review/update	1Q,3Q,4Q							
C2BMC Architecture Evolution Study	3Q							
E/CCA	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q
FDR & Midcourse Sensor Study	3Q							
IDO Block 2004/ 2006 ESG Timelines	2Q							
POM 06 & ESG Analysis	4Q	1Q						
Supported Block 06 SCS/TBSS Study	2Q-4Q							
Trade Studies	1Q-4Q							
Other								
BMDS Technical Performance and Risk Summary		1Q	1Q	1Q	1Q	1Q	1Q	1Q
BMDS Technical Risk Summary		1Q						
Risk Assessment Management Plan		2Q	2Q	2Q	2Q	2Q	2Q	2Q
Risk Mgt Plan Update	3Q							
Contractual Activities& Events								
MDNTS(I) Phase 3 Contract Award	2Q							
MDNTS(I) Phase 4 Contract Award		1Q						
MDNTS(I) Phase 5 Contract Award					1Q			
OTA Contract Award			1Q					
SE Technical Support		2Q						
General Milestones								
Adversary Engineering	1Q	1Q	1Q	1Q	1Q	1Q	1Q	1Q

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Countermeasure Characterizations	4Q	4Q	4Q	4Q	4Q	4Q	4Q	4Q
Missile Characterizations	3Q	3Q	3Q	3Q	3Q	3Q	3Q	3Q
Perform Intel Threat Analysis	2Q	2Q	2Q	2Q	2Q	2Q	2Q	2Q
Special Adversary Capability Studies	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q
Lethality								
Analyze Missile Payload Lethality	2Q	2Q	2Q	2Q	2Q	2Q	2Q	2Q
Analyze Post Engagement Lethality Data	2Q	2Q	2Q	2Q	2Q	2Q	2Q	2Q
Chem-Bio Threats - Report	4Q	4Q	4Q	4Q	4Q	4Q	4Q	4Q
Kill Assessment Phenomenology	3Q	3Q	3Q	3Q	3Q	3Q	3Q	3Q
Perform Studies Chem./Bio - Agents at Altitudes	1Q	1Q	1Q	1Q	1Q	1Q	1Q	1Q
Submunition Properties	3Q	3Q	3Q	3Q	3Q	3Q	3Q	3Q
Viscoelastic Fluid Properties	3Q	3Q	3Q	3Q	3Q	3Q	3Q	3Q
Integration								
Block 2006 Integration Design Review		3Q						
Block 2008 Integration Design Review				2Q				
Integration Monthly Report	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

COST ($ in Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0105 Countermeasures/Counter-Countermeasures (CM/CCM)	19,511	29,557	24,700	26,522	26,700	27,700	23,028	23,366
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

The Missile Defense Agency's (MDA) Countermeasures/Counter-Countermeasures (CM/CCM) Program assesses technical risks, identifies mitigation approaches and integrates engineering changes to the baseline Ballistic Missile Defense System (BMDS) to improve its performance against the full spectrum of adversary capabilities, focusing primarily on defeating countermeasures. The CM/CCM Program determines the range of feasible engineering approaches an adversary could use to defeat or degrade the BMDS, and develops conceptual countermeasures to realize those approaches. The CM/CCM Program conducts tailored threat system engineering to support BMDS capability improvement and works collaboratively with the Threat Systems Engineering Team to synchronize and integrate development efforts. These efforts ensure consistent representation of adversary capabilities with the MDA Adversary Capability Document. The CM/CCM Program brings together capabilities from across MDA; to include System, Element, and Component technical experts; to conduct integrated engineering assessments of BMDS performance against countermeasures and the technical risks posed by these countermeasures. High-risk areas in the BMDS are identified, and counter-countermeasure options are proposed to mitigate these risks. An independent team of senior experts, funded by the CM/CCM Program, reviews the adversary capabilities, BMDS performance analyses, risks, and counter-countermeasure proposals and provides their assessment to the MDA Director. CM/CCM Program assessments help to focus and prioritize MDA investments in counter-countermeasures that have a strong potential to mitigate the BMDS risks identified by the program. Acting through the Systems Engineering and Integration (SE&I) team, CM/CCM employs collaborative engineering throughout the entire engineering process from concept through development to operational integration to ensure that it's solutions are part of the integrated system design.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Adversary Engineering	7,300	9,740	10,452	10,952
RDT&E Articles (Quantity)	0	0	0	0

Adversary Engineering funds the engineering analysis and characterization of the adversary capabilities and countermeasure concepts for program risk assessment and studies focused on specific topical areas related to countermeasures.

FY 2004 Accomplishments:

- Reported on results of studies and experiments on adversary countermeasures capabilities and phenomenology related to countermeasure design, deployment, and performance
- Developed a detailed parametric description of adversary capabilities and conceptual countermeasures for the midcourse phase of flight
- Delivered engineering descriptions for twelve conceptual midcourse countermeasure suites to support risk assessment and mitigation effort
- Transitioned a conceptual midcourse countermeasure suite to MDA Targets and Countermeasures for potential design and development

FY 2005 Planned Accomplishments:

- Continue characterization of adversary countermeasures capabilities and phenomenology related to countermeasure design, deployment, and performance
- Update and continue development of detailed parametric descriptions of the adversary capability space and countermeasures
- Deliver engineering descriptions for up to three conceptual countermeasure suites in support of BMDS risk assessments.

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

FY 2006 Planned Program:

- Continue characterization of adversary countermeasures capabilities and phenomenology related to countermeasure design, deployment, and performance
- Update and continue development of detailed parametric descriptions of the adversary capability space and countermeasures
- Deliver engineering descriptions for conceptual countermeasure suites in support of BMDS risk assessments.

FY 2007 Planned Program:

- Continue characterization of adversary countermeasures capabilities and phenomenology related to countermeasure design, deployment, and performance
- Update and continue development of detailed parametric descriptions of the adversary capability space and countermeasures
- Deliver engineering descriptions for conceptual countermeasure suites in support of BMDS risk assessments

	FY 2004	FY 2005	FY 2006	FY 2007
Independent Assessment	600	930	930	930
RDT&E Articles (Quantity)	0	0	0	0

Independent Assessment supports the operations of the analyses by a panel of senior experts of proposed adversary capabilities, conceptual countermeasures, risk assessments, and proposed mitigation approaches, and development of their independent assessment to the MDA Director.

FY 2004 Accomplishments:

- Conducted four reviews of CM/CCM Program adversary countermeasures, risk assessments, and proposed mitigation options
- Provided two independent assessments of planned BMDS capabilities to the MDA Director

FY 2005 Planned Accomplishments:

- Conduct reviews of CM/CCM Program adversary countermeasures, risk assessments, and proposed mitigation options
- Provide independent assessments of CM/CCM Program products to MDA Director

FY 2006 Planned Program:

- Conduct reviews of CM/CCM Program adversary countermeasures, risk assessments, and proposed mitigation options
- Provide independent assessments of CM/CCM Program products to MDA Director

FY 2007 Planned Program:

- Conduct reviews of CM/CCM Program adversary countermeasures, risk assessments, and proposed mitigation options
- Provide independent assessments of CM/CCM Program products to MDA Director

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

	FY 2004	FY 2005	FY 2006	FY 2007
BMDS Risk Assessment and Mitigation Engineering	11,611	18,887	13,318	14,640
RDT&E Articles (Quantity)	0	0	0	0

BMDS Risk Assessment and Mitigation Engineering funds integrated performance and risk assessments of the BMDS against projected adversary capabilities and conceptual countermeasures, and identification and characterization of counter-countermeasure options to mitigate BMDS risks posed by these adversary capabilities and countermeasures, and the system-level engineering required to identify the BMDS baseline changes required to implement and integrate the options into the operational system baseline. In order to accomplish this task, a collaborative engineering process that spans many organizations across MDA to include the BMDS Elements, Systems Engineering and Integration, Test and Evaluation and others is employed. Utilizing integration councils and task oriented working groups, collaborative products, e.g. concept descriptions, specifications, interfaces, etc., that define risk mitigation options are produced.

FY 2004 Accomplishments:

- Initiated and integrated support from Element Program Offices and contractors into the CM/CCM Program assessment of BMDS capabilities against adversary midcourse countermeasures and the identification and characterization of alternative counter-countermeasure concepts
- Conducted an assessment of the baseline BMDS target designation capabilities in the midcourse phase of flight against projected adversary capabilities and twelve conceptual countermeasure suites
- Conducted an advanced study to determine the engineering changes to the baseline BMDS required to integrate a counter-countermeasure initiative to enhance the lethality of kill vehicles
- Conducted an advanced study to determine the engineering changes to the baseline BMDS required to improve integrated midcourse sensor target designation capabilities
- Conducted an advanced study to examine potential for more effective sensor discrimination in the THAAD, Aegis, GMD, and STSS Elements Supported development of the initial Concept of Operation for an Advanced Discrimination Initiative

FY 2005 Planned Accomplishments:

- Execute system analysis to develop the strategy for a robust midcourse defense, focused on assessment of essential sensor functions and capabilities, enhanced weapon lethality, integrated battle management functions, and critical ancillary support
- Perform system engineering required to enable critical discrimination functions for Test Bed Blocks 2006 and 2008 capabilities
- Execute system analysis to develop the strategy for a robust midcourse defense, focused on assessment of essential sensor functions and capabilities, enhanced weapon lethality, integrated battle management functions, and critical ancillary support
- Perform system engineering required to enable critical discrimination functions for Test Bed Blocks 2006 and 2008 capabilities
- Identify critical discrimination functions Generate function sequences required to enable the critical discrimination functions
- Allocate critical discrimination functions to appropriate Elements for implementation/execution
- Provided alternative Block evolution paths/schedules for test and implement of critical discrimination functions.

FY 2006 Planned Program:

- Conduct assessments of BMDS performance against projected adversary capabilities and conceptual countermeasures to identify and evaluate performance risks and gaps
- Identify and characterize counter-countermeasures to mitigate BMDS risks posed by adversary ballistic missiles with countermeasures
- Conduct advanced studies to determine the engineering changes to the baseline BMDS required to integrate counter-countermeasure initiatives proposed by the CM/CCM Program.

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

FY 2007 Planned Program:

- Conduct assessments of BMDS performance against projected adversary capabilities and conceptual countermeasures to identify and evaluate performance risks and gaps
- Identify and characterize counter-countermeasures to mitigate BMDS risks posed by adversary ballistic missiles with countermeasures
- Conduct advanced studies to determine the engineering changes to the baseline BMDS required to integrate counter-countermeasure initiatives proposed by the CM/CCM Program

C. Other Program Funding Summary

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	226,765	231,145	136,241	184,877	197,229	205,191	212,435	218,763	1,612,646
PE 0603879C Advanced Concepts, Evaluations and Systems	132,701	159,878	0	0	0	0	0	0	292,579
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	860,794	928,388	1,143,610	1,034,676	879,674	617,319	731,282	485,512	6,681,255
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3,731,708	4,521,019	3,266,196	3,945,991	3,650,848	3,315,513	3,183,622	2,545,882	28,160,779
PE 0603883C Ballistic Missile Defense Boost Defense Segment	475,911	476,179	483,863	648,728	620,793	690,807	811,430	1,183,182	5,390,893
PE 0603884C Ballistic Missile Defense Sensors	417,814	577,297	529,829	995,711	1,214,008	1,186,134	1,069,208	1,018,614	7,008,615
PE 0603886C Ballistic Missile Defense System Interceptors	114,669	279,815	229,658	444,900	677,243	1,137,337	1,468,827	1,717,507	6,069,956
PE 0603888C Ballistic Missile Defense Test and Targets	616,773	720,818	622,357	684,170	608,282	643,119	661,362	670,092	5,226,973
PE 0603889C Ballistic Missile Defense Products	309,949	383,830	455,152	509,982	509,161	516,599	516,017	515,729	3,716,419
PE 0603890C Ballistic Missile Defense System Core	449,747	399,829	447,006	538,442	532,412	530,934	520,679	531,832	3,950,881
PE 0603891C Special Programs - MDA	0	0	349,522	482,903	826,173	1,097,252	1,015,198	1,244,072	5,015,120
PE 0605502C Small Business Innovative Research - MDA	146,030	0	0	0	0	0	0	0	146,030
PE 0901585C Pentagon Reservation	16,251	13,761	17,386	15,586	6,058	6,376	4,490	4,725	84,633
PE 0901598C Management Headquarters - MDA	92,100	113,777	99,327	95,443	98,984	98,728	81,492	81,760	761,611
Air Force – Other Procurement	0	0	2,400	1,453	11,279	386	17,710	25,709	58,937
Air Force – Operations and Maintenance	0	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
Air Force – Military Personnel	0	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
Army – Operations and Maintenance	37,600	49,597	66,974	68,246	69,809	71,472	73,325	75,230	512,253
Army National Guard – Operations and Maintenance	0	0	155	151	150	154	164	167	941
Army National Guard – Military Personnel	21,000	21,000	17,648	24,432	24,952	25,591	25,591	25,591	185,805
Navy – Operations and Maintenance	0	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PAC-3/MEADS – RDT&E	433,728	344,978	304,973	336,959	465,395	521,791	522,418	502,961	3,433,203
PAC-3/MEADS – Missile Procurement	841,964	574,972	581,924	578,579	660,584	616,020	509,032	738,679	5,101,754

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

D. Acquisition Strategy

The execution of program activities is a collaborative effort involving subject matter experts composed of Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC) Science Engineering and Technical Assistance (SETA), and Industry. In addition, extensive involvement by the major defense contractors responsible for the development of the BMDS, Elements, and major components is required. CM/CCM initiatives will be executed by various labs and industry contractors through the MDA Advanced Systems directorate and BMDS Element Program Offices.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Product Development										

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Adversary Engineering										
SETA Support	CPFF	SPARTA/ VA	975	1,392	3Q	1,568	1/3Q	1,714	1/3Q	5,649
SETA Support	CPFF	CSC/ VA	125	358	3Q	509	1/3Q	551	1/3Q	1,543
Models and Signatures		Delta Research/ AL	300	527	1/3Q	665	1/3Q	742	1/3Q	2,234
Models and Simulations	MIPR	ARL/ NM	575	867	1Q	956	1Q	1,030	1Q	3,428
Analysis Support	MIPR	Battelle/ OH	368	415	1Q	445	1Q	486	1Q	1,714
Countermeasure Engineering and Analysis		Missile Defense Center/ VA	3,000	3,656	1/3Q	3,784	1/3Q	3,904	3/4Q	14,344
BMDS Risk Assessment and Mitigation Engineering										
SETA Support	CPFF	CSC/ MA	0	500	3Q	500	1/3Q	500	1/3Q	1,500
Assessment and Concept Development Support		MDA Elements	0	3,383	1/3Q	3,922	1/3Q	3,957	1/3Q	11,262
Collaborative Engineering		MDA Elements	4,237	9,197	1/3Q	2,900	1/3Q	3,722	1/3Q	20,056
Other DOD		SMDC/AL	870	1,118	1/3Q	1,260	1/3Q	1,260	1/3Q	4,508

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Other DOD		THADD/VA	745	1,200	4Q	1,231	1/3Q	1,231	1/3Q	4,407
Subtotal Support Costs			11,195	22,613		17,740		19,097		70,645

Remarks

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										

Remarks

IV. Management Services Cost ($ in Thousands)

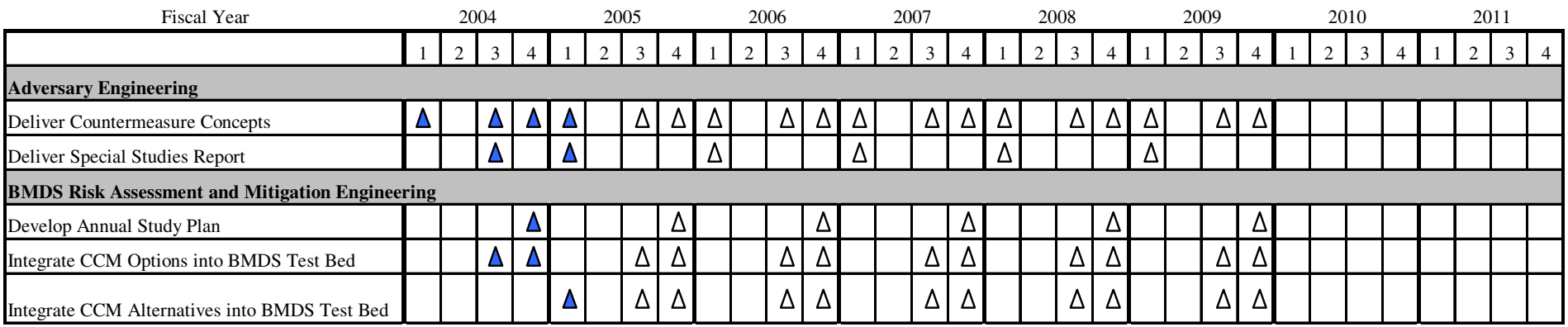
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Adversary Engineering										
FFRDC/UARC/DoE Labs	MIPR	Various	1,882	2,525	1/3Q	2,525	1/3Q	2,525	N/A	9,457
Independent Assessment										
FFRDC/UARC/DoE Labs	MIPR	Various	75	930	1/3Q	930	1/3Q	930	2/4Q	2,865
BMDS Risk Assessment and Mitigation Engineering										
FFRDC/UARC/DoE Labs	MIPR	Various	2,885	3,489	1/3Q	3,505	1/3Q	3,970	1/3Q	13,849
Subtotal Management Services			4,842	6,944		6,960		7,425		26,171

Remarks

Project Total Cost			16,037	29,557		24,700		26,522		96,816

Remarks

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Adversary Engineering								
Award Missile Defense Center Contract	2Q	2Q	2Q	2Q	2Q	2Q		
Develop Countermeasure Concepts	1Q,2Q,3Q	1Q,2Q,3Q	1Q,2Q,3Q	1Q,2Q,3Q	1Q,2Q,3Q	1Q,2Q,3Q		
Deliver Countermeasure Concepts	1Q,3Q,4Q	1Q,3Q,4Q	1Q,3Q,4Q	1Q,3Q,4Q	1Q,3Q,4Q	1Q,3Q,4Q		
Conduct Special Studies	2Q,3Q,4Q	2Q,3Q,4Q	2Q,3Q,4Q	2Q,3Q,4Q	2Q,3Q,4Q	2Q,3Q,4Q		
Deliver Special Studies Report	3Q	1Q	1Q	1Q	1Q	1Q		
BMDS Risk Assessment and Mitigation Engineering								
Develop Annual Study Plan	4Q	4Q	4Q	4Q	4Q	4Q		
Integrate CCM Options into BMDS Test Bed	3Q,4Q	3Q,4Q	3Q,4Q	3Q,4Q	3Q,4Q	3Q,4Q		
Integrate CCM Alternatives into BMDS Test Bed		1Q,3Q,4Q	3Q,4Q	3Q,4Q	3Q,4Q	3Q,4Q		
Independent Assessment								
Provide Independent Assessments to MDA	2Q,3Q,4Q	2Q,3Q,4Q	2Q,3Q,4Q	2Q,3Q,4Q	2Q,3Q,4Q	2Q,3Q,4Q		
Review Blue Team CCM Concepts and Plans	1Q,3Q	1Q,3Q	1Q,3Q	1Q,3Q	1Q,3Q	1Q,3Q		
Mitigation Concept Engineering								
Present Counter-Counter Options to MDA CCB	1Q,4Q	1Q,4Q	1Q,4Q	1Q,4Q	1Q,4Q	1Q,4Q		

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

COST ($ in Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0201 Command and Control, Battle Management and Communications Core	18,311	1,667	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note:
Starting FY 2006, this project is captured under PE 0603889C (BMD Products) Projects 0701, 0801, 0901 and 0001.

A. Mission Description and Budget Item Justification

In collaboration with the Missile Defense Agency's Systems Engineering and Integration defined architectures and system specifications, the Command and Control, Battle Management and Communications (C2BMC) Program provides the warfighter the capability of planning the Ballistic Missile Defense (BMD) fight while concurrently: tracking all potential ballistic missile threats; directing weapons to engage via a distributed network and paring any sensor with any weapon system to defeat ballistic missile threats at any range, in any phase of flight, in all theaters, and with coalition partners.

By the end of Block 2004, the C2BMC Program will deliver the rudimentary foundation for integrated, layered defense by delivering new and enhanced capabilities for BMD Planner, BMD Situational Awareness, Advanced Battle Manager, and the BMDS Network. Specifically, the C2BMC Program will: design and deliver initial displays that portray the BMD battlespace and provide initial Force level planning to the warfighter; develop and deliver a battle management prototype incorporating Forward Deployed X-Band (FBX-T) sensor management; and, deliver redundant communication paths to ensure a robust network. These capabilities will enable Engagement Sequence Groups (ESG) that involve the following BMDS elements and components: Ground Based Interceptor (GBI), Standard Missile 3 (SM-3), Cobra Dane Upgraded Early Warning Radar, SPY-1 Sensor, and Forward Based X-Band (FBX-T) Sensor. Additionally, C2BMC installation sites have been or will be activated and supported as a part of Block 2004 to enable the warfighter to perform BMD. As the number of activated sites and maturity of the C2BMC capability increases, the C2BMC Program continues concurrent development and operational integration and testing, as well as sustains fielded capabilities. Thus, Block 2004 includes infrastructure development, testing activity and operations and support to ensure accomplishment of all block objectives.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
C2BMC Element	18,311	1,667	0	0
RDT&E Articles (Quantity)	0	0	0	0

The C2BMC Element accomplishes Block 2004 objectives by balancing the development of four principle product lines -- Situational Awareness, Planner, Battle Management, and Network -- so that mature capabilities can be integrated and incrementally delivered to the warfighter via Spirals. Block 2004 includes infrastructure development, testing activity, as well as sustainment of fielded capabilities. C2BMC Core funding supports the following Block 2004 accomplishments and plans.

FY 2004 Accomplishments:

- Began Spiral 4.4 development
- Began Spiral 4.5 development

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

FY 2005 Planned Program:

- Government Support to C2BMC

C. Other Program Funding Summary

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	226,765	231,145	136,241	184,877	197,229	205,191	212,435	218,763	1,612,646
PE 0603879C Advanced Concepts, Evaluations and Systems	132,701	159,878	0	0	0	0	0	0	292,579
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	860,794	928,388	1,143,610	1,034,676	879,674	617,319	731,282	485,512	6,681,255
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3,731,708	4,521,019	3,266,196	3,945,991	3,650,848	3,315,513	3,183,622	2,545,882	28,160,779
PE 0603883C Ballistic Missile Defense Boost Defense Segment	475,911	476,179	483,863	648,728	620,793	690,807	811,430	1,183,182	5,390,893
PE 0603884C Ballistic Missile Defense Sensors	417,814	577,297	529,829	995,711	1,214,008	1,186,134	1,069,208	1,018,614	7,008,615
PE 0603886C Ballistic Missile Defense System Interceptors	114,669	279,815	229,658	444,900	677,243	1,137,337	1,468,827	1,717,507	6,069,956
PE 0603888C Ballistic Missile Defense Test and Targets	616,773	720,818	622,357	684,170	608,282	643,119	661,362	670,092	5,226,973
PE 0603889C Ballistic Missile Defense Products	309,949	383,830	455,152	509,982	509,161	516,599	516,017	515,729	3,716,419
PE 0603890C Ballistic Missile Defense System Core	449,747	399,829	447,006	538,442	532,412	530,934	520,679	531,832	3,950,881
PE 0603891C Special Programs - MDA	0	0	349,522	482,903	826,173	1,097,252	1,015,198	1,244,072	5,015,120
PE 0605502C Small Business Innovative Research - MDA	146,030	0	0	0	0	0	0	0	146,030
PE 0901585C Pentagon Reservation	16,251	13,761	17,386	15,586	6,058	6,376	4,490	4,725	84,633
PE 0901598C Management Headquarters - MDA	92,100	113,777	99,327	95,443	98,984	98,728	81,492	81,760	761,611
Air Force – Other Procurement	0	0	2,400	1,453	11,279	386	17,710	25,709	58,937
Air Force – Operations and Maintenance	0	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
Air Force – Military Personnel	0	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
Army – Operations and Maintenance	37,600	49,597	66,974	68,246	69,809	71,472	73,325	75,230	512,253
Army National Guard – Operations and Maintenance	0	0	155	151	150	154	164	167	941
Army National Guard – Military Personnel	21,000	21,000	17,648	24,432	24,952	25,591	25,591	25,591	185,805
Navy – Operations and Maintenance	0	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PAC-3/MEADS – RDT&E	433,728	344,978	304,973	336,959	465,395	521,791	522,418	502,961	3,433,203
PAC-3/MEADS – Missile Procurement	841,964	574,972	581,924	578,579	660,584	616,020	509,032	738,679	5,101,754

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

D. Acquisition Strategy

The C2BMC acquisition strategy is consistent with the Missile Defense Agency's capability based acquisition strategy that emphasizes testing, spiral development, evolutionary acquisition, and knowledge based funding through the use of two-year capability blocks. The Missile Defense National Team C2BMC (Industry) (MDNTB(I)) led by Lockheed Martin Mission Systems is the C2BMC prime contractor via an Other Transactions Agreement. They are charged with the development, fielding and support of the C2BMC prototype and perform development and testing of C2BMC products in Arlington VA, Huntsville AL, and Colorado Springs CO. C2BMC element government, FFRDC/UARC, and SETA personnel are also fully integrated as part of the Prime contractor's team to function in an Integrated Product Team environment.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
C2BMC Element										
C2BMC HW/SW Development	SS/CPAF	MDNTB/ Washington, DC	16,936	0	N/A	0	N/A	0	N/A	16,936
SBIRS	SS/CPAF	Lockheed Martin/ Sunnyvale, CA	1,000	0		0		0		1,000
Federally Funded Research Development Center	SS/CPAF	JHU, ORNL/ Washington DC	245	0		0		0		245
Scientific Engineering and Technical Assistance	SS/CPFF	SPARTA/MDA HQ/ Arlington, VA	130	0		0		0		130
Government		MDA HQ/ Arlington, VA	0	1,667		0		0		1,667
Subtotal Product Development			18,311	1,667		0		0		19,978

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Support Costs										

Remarks

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										

Remarks

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Management Services										

Remarks

Project Total Cost			18,311	1,667		0		0		19,978

Remarks

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	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
Contractual Activities& Events																																
MDNTB(I) Part 3 Contract Award		Δ																														
MDNTB(I) Part 3 Contract Integrated Baseline Rvw			Δ																													

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Contractual Activities& Events								
MDNTB(I) Part 3 Contract Award	2Q							
MDNTB(I) Part 3 Contract Integrated Baseline Rvw	3Q							

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

COST ($ in Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0102 Intelligence and Security	16,568	20,659	21,294	23,346	25,727	27,286	27,892	28,510
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note:
As addressed below, this Project has been restructured to incorporate the Counterintelligence effort and the BMDS Certification effort (beginning in FY 2005). Prior to these realignments, the efforts were contained under PE 0901598C (MDA Management Headquarters). As a result of this restructuring, the fiscal profile for Project 0102 increases slightly in FY 2005 and beyond.

A. Mission Description and Budget Item Justification

In the FY 2005 President's Budget, this Project consisted of the MDA Intelligence program and was entitled the Intelligence Project. However, this project has been restructured to more accurately capture similar efforts focused on 1) maximizing actionable threat information (whether pertaining to threats the BMDS is designed to counter or threats posed by Foreign Intelligence and Security Services (FISS) and terrorist groups) and 2) ensuring the security of the BMDS. As a result, the Project now captures three specific areas: 1) intelligence, 2) counterintelligence, and 3) BMDS information assurance systems certification. Together these efforts provide critical information regarding threat ballistic missile system capabilities (via intelligence); protection of personnel, activities, and technology from espionage and terrorism through active and passive activities (via counterintelligence); and BMDS system vulnerabilities (via BMDS certification).

To better reflect these changes, the Project name is changed to Intelligence and Security, and the Project now captures the following activities:

1. Intelligence. This activity ensures the development, study and exploitation of relevant, actionable threat information, and makes this information available to all MDA organizations. Through this activity, authoritative, current and projected threat data are provided to support MDA leadership, Ballistic Missile Defense System (BMDS) architecture design, testing, modeling, and wargaming activities, and existing/future national technical means are leveraged to enhance the effectiveness of the BMDS. This information reduces risk, improves system performance, and informs the engineering and development process; it enables MDA program managers to achieve a sufficiently accurate understanding of the threat environment to respond to relevant capabilities of immediate importance, make informed decisions and invest limited resources on countering the most significant aspects of potential adversary capabilities. Other aspects of the Intelligence program are designed to gain access to, and leverage, unique, Intelligence Community developed, owned and operated capabilities for the benefit of the Missile Defense Community. Many are highly classified and require both access and expertise to exploit. The Program supports the overarching MDA objectives of BMDS on-Alert, continuing spiral development, and enhanced BMDS capabilities.

2. Counterintelligence. The MDA Counterintelligence Office serves as the MDA focal point for all counterintelligence (CI) matters and external coordination with the Services, the FBI, and other federal criminal investigative organizations. This office ensures that MDA leadership and the entire workforce are apprised of threats posed by Foreign Intelligence and Security Services (FISS) and terrorist groups worldwide. Under this MDA CI activity, a comprehensive CI education program is developed and administered; this includes 1) providing the workforce CI awareness briefings and foreign travel briefings and debriefings as needed, and 2) publishing CI awareness products. Additionally, under this CI activity, operational, investigative and CI functional support are provided to the MDA/BMDS Research and Technology Protection programs and test activities through oversight and approval of CI Support Plans, Defense Threat Assessments and Multi-Discipline CI Threat Analyses.

3. BMDS Certification. This activity develops a comprehensive picture of the overall Information Assurance/Computer Network Defense (IA/CND) architecture at all levels of the BMDS. To accomplish this, the MDA BMDS Certification and Accreditation team must interface with relevant stakeholders, assess documentation and IA/CND design, gain insight into past/present security related issues, and exploit threat/vulnerability assessments to identify trends, understand threats and manage risks to fulfill certification and accreditation related requirements. This office also provides a recommendation to the Designated Approving Authority relating to system certification for the BMDS and its Elements. Additionally, this certification entails engagement in various activities to assess the security posture by 1) identifying opportunities to implement Defense-in-Depth (DiD) in Block 06 and subsequent versions of the BMDS 2) providing oversight, coordination and management of all processes (e.g., definition and scope of ST&E's, vulnerability assessments, and risk mitigation strategies), and 3) by conducting cyber threat/vulnerability assessments in coordination with the Intelligence Community (IC) in order to influence BMDS risk, vulnerability, and ST&E resolution strategy.

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Counterintelligence	0	2,552	2,743	3,105
RDT&E Articles (Quantity)	0	0	0	0

FY 2004 Accomplishments: N/A As noted above, prior to FY 2005, funding was captured under PE 0901598C (MDA Management Headquarters).

FY 2005 Planned Accomplishments:

- Develop a Technical Surveillance and Countermeasures (TSCM) Capability
- Develop an automated Travel Net Program
- Initiate an exhaustive counterintelligence (CI) review of Small Business Innovation Research (SBIR) proposals
- Initiate CI Mapping/Matrix Project for MDA Critical Program Information (CPI)
- Establish on-site LNO at Defense Security Service
- Provide CI Support to PROJECT DOMAIN (FBI) and PROJECT BLUEPRINT (Naval Criminal Investigative Service (NCIS))
- Implement CI support model for MDA/TE
- Publish CI Threat Assessments and MDCITAs
- Expand and update CI Database (Primes, SBIR, FBI, Mapping)
- Field Remote Intelligence Support Capability
- Develop/Implement MDA CI Policy
- Implement CI portal of the MDA classified LAN

FY 2006 Planned Program:

- Field Technical Surveillance and Countermeasures (TSCM) Capability
- Implement automated Travel Net Program
- Develop an MDA Insider Threat Program
- Continue review of SBIR proposals
- Continue to publish CI Threat Assessments and MDCITAs
- Continue to develop, expand and populate CI databases

FY 2007 Planned Program:

- Enhance TSCM capability
- Enhance automated Travel Net Program
- Implement MDA Insider Threat Program
- Continue review of SBIR proposals
- Continue to publish CI Threat Assessments and MDCITAs

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

- Continue to develop, expand and populate CI databases
- Conduct CI Assessments of MDA Test Ranges

	FY 2004	FY 2005	FY 2006	FY 2007
BMDS Certification	0	1,116	1,249	1,421
RDT&E Articles (Quantity)	0	0	0	0

FY 2004 Accomplishments: N/A. As noted above, in FY 2004 and prior, funding was captured under PE 0901598C (MDA Management Headquarters).

FY 2005 Planned Accomplishments:

- Develop a certification recommendation on behalf of the BMDS components and overall system in time to fulfill Block 04 release dates.
- Conduct vulnerability assessments against the block release, to include White Team Assessments (e.g., policy, procedure and process review conducted by an unbiased third party).
- Implement risk management processes across the BMDS elements to prioritize and categorize vulnerabilities. This information helps decision makers understand the risks, select strategies to mitigate threats, and enhance the information systems infrastructure, while improving the security, command and control of essential systems.
- Enhance the confidentiality, integrity and availability of key systems, networks and data through direct participation in information assurance related activities designed to enforce requirements, verify and/or implement essential processes, controls and procedures required by key systems as part of a defensive strategy.
- Characterize existing Information Assurance (IA) related guidance (e.g., DoD 8500.2, Information Assurance Technology Framework (IATF), NSA, and DISA CND requirements) for use by systems engineers and program developers to facilitate incorporation of practices and procedures developed in accordance with emerging IA Technologies.

FY 2006 Planned Program:

- Maintain the current level of C&A support and develop a certification recommendation consistent with the DITSCAP (DIACAP when effective) to support fielded components as well as the Block 06 release, including STSS, upgraded C2BMC “backbone”, SBX radar, ABL, and THAAD.
- Coordinate with the Designated Approval Authority to ensure MDA's spiral development releases fulfill timelines.
- Conduct Blue/Red team assessments against the BMDS.
- Advise and assist elements and the overall BMDS to enhance IA/CND infrastructure.

FY 2007 Planned Program:

- Develop a certification recommendation on behalf of the BMDS components and overall system to support the increases commensurate with the expansion of the BMDS based on the Block 08 release, including STSS, upgraded C2BMC “backbone”, SBX radar, ABL, and THAAD.
- Coordinate with the Designated Approval Authority to ensure MDA's spiral development releases fulfill timelines.
- Maintain the advise and assist role related to enhance the IA/CND infrastructure for deployed block and beyond.

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

	FY 2004	FY 2005	FY 2006	FY 2007
Intelligence	16,568	16,991	17,302	18,820
RDT&E Articles (Quantity)	0	0	0	0

FY 2004 Accomplishments:

- Established the National Sensor Integration Rapid Prototype (NSIRP) to use national technical means of the Intelligence Community to assist in Missile Defense engagements.
- Restructured current MASINT reporting to provide real-time (R/T) data streams to BMD node(s).
- Leveraged community algorithm development effort for ballistic missile events and focus on reporting to enhance missile defense.
- Brought on line the Missiles and Rockets Knowledge Base (MARKB) (allowing C2BMC reach back into intelligence databases).
- Initiated development of UMPIRE (a universal tool to allow BMDS planners and warfighters to access disparate Intelligence Community (IC) databases using a single interface).
- Developed intelligence-based plume and signature data for C2BMC and the COCOMs.
- Provided threat support in all MDA sponsored and supported wargames and exercises.
- Provided daily intelligence support to the MDA Director, his Principal Staff Officers, and the Missile Defense Operations Center (MOC).

FY 2005 Planned Accomplishments:

- Expand MASINT reporting data streams to BMD nodes through increasing number of assets used in warning of potential launch events and co-process these data streams with other assets to bring higher confidence of detection and characterization and reduce the potential for false alarms.
- Expand worldwide missile event reporting capability to provide for near real-time (NRT) assessment and fusion of signature and metric performance data sets to evaluate reporting on threat ballistic missiles and to support fusion of national technical means.
- Enhance and expand the Missiles and Rockets Knowledge Base (MARKB).
- Enhance UMPIRE (a universal tool to allow BMDS planners and warfighters to access disparate Intelligence Community (IC) databases using a single interface).
- Develop intelligence-based plume and signature data for C2BMC and the COCOMs.
- Provide threat support in all MDA sponsored and supported wargames and exercises.
- Provide daily intelligence support to the MDA Director, his Principal Staff Officers, and the Missile Defense Operations Center (MOC).

FY 2006 Planned Program:

- Further enhance and expand the Missiles and Rockets Knowledge Base (MARKB).
- Further enhance UMPIRE (a universal tool to allow BMDS planners and warfighters to access disparate Intelligence Community (IC) databases using a single interface).
- Develop intelligence-based plume and signature data for C2BMC and the COCOMs.
- Provide threat support in all MDA sponsored and supported wargames and exercises.
- Provide daily intelligence support to the MDA Director, his Principal Staff Officers, and the Missile Defense Operations Center (MOC).

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

FY 2007 Planned Program:

- Further enhance and expand the Missiles and Rockets Knowledge Base (MARKB).
- Further enhance UMPIRE (a universal tool to allow BMDS planners and warfighters to access disparate Intelligence Community (IC) databases using a single interface). Develop intelligence-based plume and signature data for C2BMC and the COCOMs.
- Provide threat support in all MDA sponsored and supported wargames and exercises.
- Provide daily intelligence support to the MDA Director, his Principal Staff Officers, and the Missile Defense Operations Center (MOC).

C. Other Program Funding Summary

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	226,765	231,145	136,241	184,877	197,229	205,191	212,435	218,763	1,612,646
PE 0603879C Advanced Concepts, Evaluations and Systems	132,701	159,878	0	0	0	0	0	0	292,579
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	860,794	928,388	1,143,610	1,034,676	879,674	617,319	731,282	485,512	6,681,255
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3,731,708	4,521,019	3,266,196	3,945,991	3,650,848	3,315,513	3,183,622	2,545,882	28,160,779
PE 0603883C Ballistic Missile Defense Boost Defense Segment	475,911	476,179	483,863	648,728	620,793	690,807	811,430	1,183,182	5,390,893
PE 0603884C Ballistic Missile Defense Sensors	417,814	577,297	529,829	995,711	1,214,008	1,186,134	1,069,208	1,018,614	7,008,615
PE 0603886C Ballistic Missile Defense System Interceptors	114,669	279,815	229,658	444,900	677,243	1,137,337	1,468,827	1,717,507	6,069,956
PE 0603888C Ballistic Missile Defense Test and Targets	616,773	720,818	622,357	684,170	608,282	643,119	661,362	670,092	5,226,973
PE 0603889C Ballistic Missile Defense Products	309,949	383,830	455,152	509,982	509,161	516,599	516,017	515,729	3,716,419
PE 0603890C Ballistic Missile Defense System Core	449,747	399,829	447,006	538,442	532,412	530,934	520,679	531,832	3,950,881
PE 0603891C Special Programs - MDA	0	0	349,522	482,903	826,173	1,097,252	1,015,198	1,244,072	5,015,120
PE 0605502C Small Business Innovative Research - MDA	146,030	0	0	0	0	0	0	0	146,030
PE 0901585C Pentagon Reservation	16,251	13,761	17,386	15,586	6,058	6,376	4,490	4,725	84,633
PE 0901598C Management Headquarters - MDA	92,100	113,777	99,327	95,443	98,984	98,728	81,492	81,760	761,611
Air Force – Other Procurement	0	0	2,400	1,453	11,279	386	17,710	25,709	58,937
Air Force – Operations and Maintenance	0	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
Air Force – Military Personnel	0	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
Army – Operations and Maintenance	37,600	49,597	66,974	68,246	69,809	71,472	73,325	75,230	512,253
Army National Guard – Operations and Maintenance	0	0	155	151	150	154	164	167	941
Army National Guard – Military Personnel	21,000	21,000	17,648	24,432	24,952	25,591	25,591	25,591	185,805

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
Navy – Operations and Maintenance	0	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PAC-3/MEADS – RDT&E	433,728	344,978	304,973	336,959	465,395	521,791	522,418	502,961	3,433,203
PAC-3/MEADS – Missile Procurement	841,964	574,972	581,924	578,579	660,584	616,020	509,032	738,679	5,101,754

D. Acquisition Strategy

In support of acquiring an effective BMDS capability, this project directs various executing agents and leverages expertise in the intelligence community, counterintelligence community, and information assurance community, including the military departments, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution to the BMDS.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Product Development										

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Counterintelligence										
Analysis and Support	C/FFP	Beta Analytics Int`l, Inc./ Wash, DC	0	2,277	1/2Q	2,443	1/2Q	2,621	1/2Q	7,341
Analysis and Support	Various	Various/ Various	0	275	1/4Q	300	1/4Q	484	1/4Q	1,059
Intelligence										
Leverage Existing/Future Assets	MIPR	USAF/ SMC, Los Angeles, CA	3,000	3,200	1/4Q	1,280	1/4Q	1,470	1/4Q	8,950
Leverage Existing/Future Assets	Various	Various/ JNIC, CO; NSWC, VA; USAF, OH	1,611	1,660	1/4Q	2,525	1/4Q	2,740	1/4Q	8,536
Intelligence Support Center	SS/CPAF	JNIC - Northrop Grumman/ Shriever AFB,CO	1,000	1,000	1/3Q	1,450	1/3Q	1,750	1/3Q	5,200
Scenario Applications	Various	SMDC - TSC/ Huntsville, AL	2,667	2,400	1/3Q	2,500	1/3Q	2,750	1/3Q	10,317

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Characterization	SS/CPAF	JNIC - Northrop Grumman/ Shriever AFB,CO	2,198	2,000	1/3Q	2,230	1/3Q	2,255	1/3Q	8,683
Current Intelligence & Portal	Various	Various/ Various	1,020	1,115	1/3Q	1,289	1/3Q	1,495	1/3Q	4,919
Wargaming	SS/CPAF	JNIC - Northrop Grumman/ Shriever AFB,CO	300	350	1/2Q	380	1/2Q	438	1/2Q	1,468
Studies & Scenario Development	Various	Various/ Various	800	421	N/A	519	2/4Q	670	2/4Q	2,410
Subtotal Support Costs			12,596	14,698		14,916		16,673		58,883

Remarks

Prior to FY05, Counterintelligence funding was contained under PE 0901598C (MDA Management Headquarters).

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										

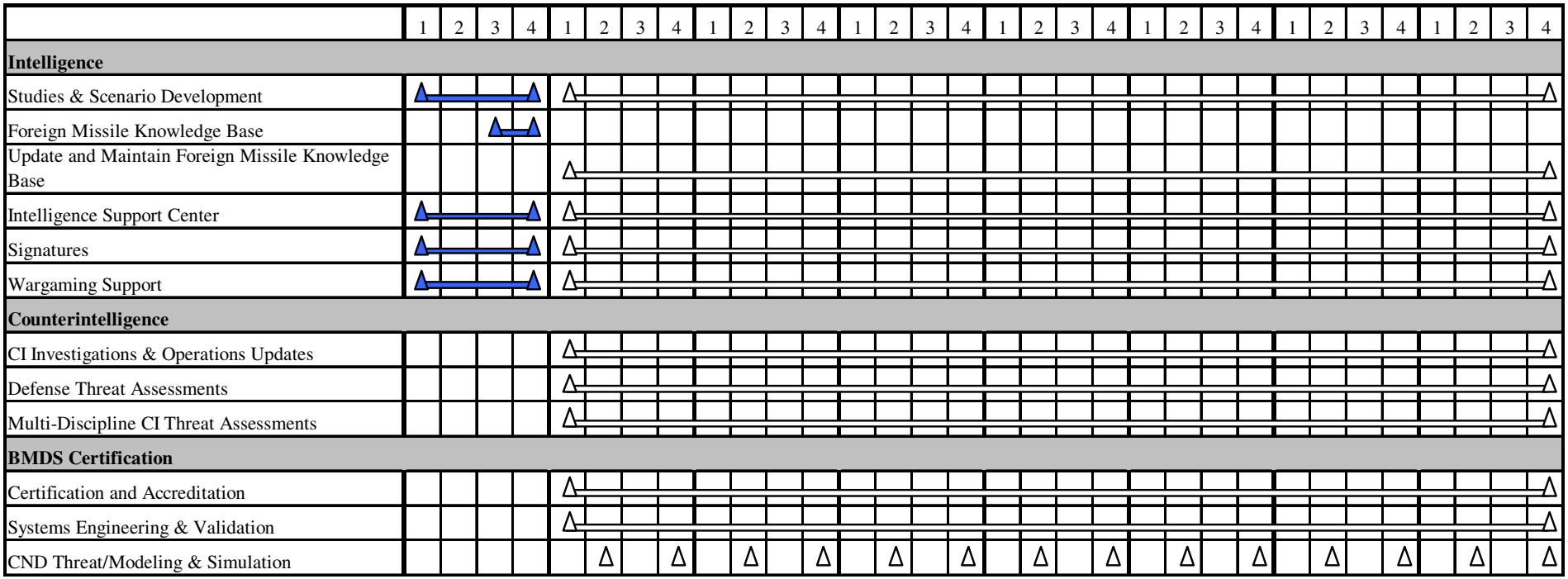
Remarks

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
BMDS Certification										
Certification & Validation Support	FFRDC	Multiple/ Los Angeles, CA; Ft Monmouth, NJ	0	1,116	1/2Q	1,249	1/2Q	1,421	1/2Q	3,786
Intelligence										
Project Management Support	FFRDC	SMC (Aerospace)/ Los Angeles, CA	600	930	1Q	960	1Q	990	1Q	3,480
Project Management	C/FFP	BAH/ McLean, VA	2,549	2,715	1/4Q	2,849	1/4Q	2,862	1/4Q	10,975
Project Management	SS/TM	PRA/ San Diego, CA	823	1,200	1/3Q	1,320	1/3Q	1,400	1/3Q	4,743
Subtotal Management Services			3,972	5,961		6,378		6,673		22,984
Remarks										
Prior to FY05, BMDS Certification funding was contained in PE 0901598C (MDA Management Headquarters).										
Project Total Cost			16,568	20,659		21,294		23,346		81,867
Remarks										

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Intelligence								
Studies & Scenario Development	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Foreign Missile Knowledge Base	3Q-4Q							
Update and Maintain Foreign Missile Knowledge Base		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Intelligence Support Center	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Signatures	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Intelligence Briefings	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Intelligence Summaries and Readbooks	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Wargaming Support	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Counterintelligence								
CI Investigations & Operations Updates		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Defense Threat Assessments		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Intelligence Information Reports		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Multi-Discipline CI Threat Assessments		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Summaries and Readbooks		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Travel Briefings & Debriefings		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
BMDS Certification								
Certification and Accreditation		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Systems Engineering & Validation		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
CND Threat/Modeling & Simulation		2Q,4Q	2Q,4Q	2Q,4Q	2Q,4Q	2Q,4Q	2Q,4Q	2Q,4Q

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

COST ($ in Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0103 Producibility & Manufacturing Technology	28,267	36,254	27,313	36,211	38,597	41,564	42,462	43,378
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note:
FY05 funding includes $3.85M in Congressional Plus-Ups. In FY05 and FY06 $6.5M and $9.0M of Project 0103 core funding respectively was reprogrammed to an industrial investment appropriation on a two year trial basis to better leverage MDA Producibility and Manufacturing Technology efforts. The benefits derived from this initial effort will determine the level of potential reprogrammings in future years.

A. Mission Description and Budget Item Justification

Producibility and Manufacturing Technology (MP) is integral to MDA's capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the implementation of two-year capability blocks. An essential component of strong systems engineering practices, MP provides common, integrated programs across the BMDS Elements to ensure mature industrial manufacturing capabilities are available to the Blocks through risk reduction, cost reduction/avoidance, and performance enhancement. MP furthers efforts in commonality and spreads best practices for producibility and manufacturing across the BMDS Elements by cooperatively funding and leveraging efforts.

MP provides crosscutting BMDS manufacturing risk assessments, industrial capability assessments, and near term (1-3 year) producibility enhancements. Manufacturing risk assessments are accomplished through Engineering and Manufacturing Readiness Level (EMRL) Assessments, the MP systems engineering tool that employs widespread industry and BMDS Element interaction to analyze the maturity of manufacturing processes for BMDS and the Elements that insert into the BMDS Risk Management Process. Industrial Capability Assessments (ICAs) are accomplished broadly across the BMDS Industrial Base where trades are performed to assess and analyze the original equipment manufacturers (OEMs), supplier base, and others that produce end items for the BMDS. Near term producibility enhancements are accomplished through efforts in a number of key investment areas: Power Systems, Radiation Hardening (RAD HARD), Manufacturing Process Improvements, Electro-Optics/Infrared (EO/IR), Radar and RF, Propulsion, and Advanced Materials and Structures. All MP investments within these areas are applied towards near term manufacturing improvements/producibility enhancements. These efforts are programmed for BMDS Element integration within a three to five year timeframe. In FY05 there is a significant increase in resources applied to the RAD HARD program. This increase is a result of BMDS near term capability improvements desired for the Block 06 BMDS and is part of the overall funding profile for the RAD HARD electronics program. The MP 06 funding is a result of the reprogramming of funds to the OSD Title III program. This will be reevaluated in the MDA internal POM review.

The Power Systems objective is to establish a long-term, viable, world-class manufacturer of high performance thermal batteries that are responsive to requirements with respect to quality, delivery, and price for various configurations of thermal batteries. To accomplish this, Power Systems projects focus on providing alternative higher energy density power sources for BMDS systems that are more producible, reliable, and predictable. Projects also focus on developing new and improving manufacturing technologies and processes as well as the development of second source vendors with alternate technologies. These projects include advanced but available thermal power sources for interceptors, as well as other advanced primaries for GBI and THAAD Program KVs. Higher density secondary (rechargeable) power sources for missile defense applications and advanced but available solar array technology that can be hardened against natural and enhanced radiation environments are also required.

The Radiation Hardening objective is to provide an integrated strategy to increase the availability of affordable Radiation Hardened (RH) and Radiation Tolerant (RT) devices for BMDS. Efforts include: support of programs at established foundries for critical devices being developed under the Radiation Hardening Oversight Council (RHOC), support programs at specified commercial foundries that utilize special Hardness by Design (HBD) rules to enhance radiation hardness with commercial manufacturing processes and practices, enhanced circuit modeling and simulation capabilities to better predict radiation hardness levels, developing a catalog of RH and RT devices available to MDA system designers, and exploring alternate hardening techniques.

The Manufacturing Process Improvements objective is to identify manufacturing processes and practices that serve both short-term and long-term MDA requirements. Efforts to accomplish this include: reducing unit cost for major subsystems in MDA systems, exploiting commercial practices to reduce capitalization costs, reducing timelines for long lead items through rapid prototyping of items with audit trail to demonstrated manufacturing heritage, eliminating hazardous or difficult to obtain materials that may add to cost and schedule, introducing metrics such as Engineering and

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Manufacturing Readiness Levels (EMRLs) to assure technologies are ready for insertion in MDA systems, and providing prime contractors and major subcontractors with support to adopt best practices and lean manufacturing to enhance productivity. Additionally this area addresses overarching industrial base issues such as supply chain management, critical suppliers, parts obsolescence, and technology refresh.

The Electro-Optics/Infrared (EO/IR) objective is to implement producibility and reliability programs to assure availability of RH and RT IR and visible Focal Plane Arrays (FPAs), readouts, cryocoolers and optics to meet the diverse requirements of BMDS systems for missile and satellite environments. Congressional Plus-Ups for Electro-Optical Components and Sensor Electronics LCC Reduction were appropriated to Project 0103 in FY05 and will be executed in the EO/IR area.

The Radar & RF objective is to provide subsystem improvements to enhance BMDS radar performance and sensitivity for emerging threats. Efforts to accomplish this will include: demonstrating producibility and reliability of high-power amplifiers, introducing producible materials and technologies to enhance thermal management, improving manufacturability of Transmit/Receive (T/R) Modules and Transmit/Receive Integrated Microwave Modules (TRIMMs) for cost and schedule, introducing Open System approaches and architecture to prevent parts obsolescence and stimulate competition at the subsystem level, and introducing composite materials to reduce antenna weight and improve transportability.

The Propulsion objective is to provide affordable, reliable propulsion systems/subsystems for the BMDS Elements. Efforts to achieve this objective will include: introducing innovative high-temperature materials to replace refractory metals reducing cost, weight and manufacturing time; implementing lean manufacturing and quality control to recapture cost and schedule for affected BMDS Elements; and executing programs to address scalability in propulsion systems addressing endurance, erosion resistance and improved manufacturing processes.

The Advanced Materials & Structures objective is to replace exotic material such as Beryllium and Lithium Aluminum alloys with polymer matrix composites (PMCs) and metal matrix composites (MMCs) that exhibit equivalent strength and stiffness while being more easily producible at a lower cost. Program also aims to provide manufacturing processes, similar to those in commercial industry, that allow rapid prototyping and limited production without long lead times for: Interceptor and KV structures, Radar and EO Seekers, and missile canisters and launchers.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Power Systems	1,574	4,196	3,585	3,592
RDT&E Articles (Quantity)	0	0	0	0

FY 2004 Accomplishments:

- Completion of movement of STANDARD Missile Battery production line in preparation of Lithium Oxyhalide Battery Production Line relocation at Eagle Picher (EP)
- EP assembled modeling team which will develop thermal battery models
- Completion of preliminary design for THAAD Improved Oxyhalide Battery
- Initial requirements defined for Lithium-Ion satellite battery
- Completed design work for PAC-3 cobalt disulfide batteries for aging evaluation

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FY 2005 Planned Accomplishments:

- Eagle Picher (EP) Projects
  Lithium oxyhalide batteries for Ground Based Interceptor EKV and THAAD KV are mostly handmade, being built from drawings and procedures that are not sufficiently capable of conveying the subtleties of construction. Manufacturing and Producibility improvement projects will improve EP responsiveness with respect to quality, delivery and price. Eagle-Picher will implement six-sigma lean and best manufacturing techniques in order to optimize oxyhalide battery production. Additionally, they will implement a software-based expert system that allows battery assembly workers to automatically access highly detailed build and inspection procedures for lithium oxyhalide and thermal batteries. The MDA funded projects will also include a program to assist Eagle-Picher in developing high fidelity battery design, performance, and process models that will allow optimizing and improving design and manufacturability of MDA batteries.
- Process Improvement for Lithium Oxyhalide Batteries
- Battery-Build Expert System - Mitigate battery build and inspection errors
- Battery Modeling - Improve and optimize MDA batteries produced at EP
- Process Planning - Improve MDA battery manufacturing processes
- Develop an Advanced Lithium-Ion Battery for space applications
- MDA Battery Steering Group - Developing and prioritizing a battery roadmap for MDA

FY 2006 Planned Program:

- Second source battery for GBI EKV
- Full scale demonstration of satellite Lithium-Ion battery
- MDA Battery Steering Group - Maintaining and prioritizing MDA/MP Battery investments
- Continue EP Projects
- Develop an Advanced Lithium-Ion Battery for space applications

FY 2007 Planned Program:

- Completion of EP Projects
- Implementation of THAAD cold operating temperature improvement battery
- MDA Battery Steering Group - Maintaining and prioritizing MDA/MP Battery investments

	FY 2004	FY 2005	FY 2006	FY 2007
Radiation Hardening	6,774	11,098	8,004	14,656
RDT&E Articles (Quantity)	0	0	0	0

FY 2004 Program Accomplishments:

- Cataloged THAAD electronic components and radiation testing results
- Device designs and radiation testing completed for Chalcogenide RAM (C-RAM) and Electronically Erasable Programmable ROM (EEPROM) programs
- Radiation testing of commercially available Field Programmable Gate Arrays (FPGA)

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- A/D Converter IRAD effort development is complete and suitable for both natural and nuclear environments
- Developed a transparent radiation shielding material capable of significant reduction in radiation damage in a natural environment for both cover glass and lens applications

FY 2005 Planned Accomplishments:

- Inertial Measurement Unit (IMU) Interface Electronics development in support of an MDA core standard for electronics capable of IMU interchangeability
- Virtually Hard FPGA development and assessment involving the use of commercial FPGAs with and without hard wired processor cores
- Rad Hard Common Processor for missile applications involving stacking, shielding and survivability assessment
- Detector Testing - radiation tolerance testing of EKV long wave IR and visible sensors relative to High Altitude Exoatmoshperic Nuclear Survivability (HAENS) standard
- HAENS Standard testing of focal plane arrays (VLWIR, 2-color LW/LW, visible and associated read-out electronics), and other commercial electronic devices to include IMU electronics
- Non-Volatile C-RAM program- continued packaging development and assessment
- EEPROM program - continued packaging development and assessment

FY 2006 Planned Program:

- Continue IMU Interface Electronics development in support of an MDA core standard for electronics capable of IMU interchangeability
- Continue Virtually Hard FPGA development and assessment involving the use of commercial FPGAs with and without hard wired processor cores
- Continue Detector Testing - radiation tolerance testing of EKV long wave IR and visible sensors relative to HAENS standard
- Continue HAENS Standard testing of focal plane arrays (VLWIR, 2-color LW/LW, visible and associated read-out electronics), and other commercial electronic devices to include IMU electronics

FY 2007 Planned Program:

- Complete IMU Interface Electronics development in support of an MDA core standard for electronics capable of IMU interchangeability
- Complete Virtually Hard FPGA development and assessment involving the use of commercial FPGAs with and without hard wired processor cores
- Complete Detector Testing - radiation tolerance testing of EKV long wave IR and visible sensors relative to HAENS standard
- Complete HAENS Standard testing of focal plane arrays (VLWIR, 2-color LW/LW, visible and associated read-out electronics), and other commercial electronic devices to include IMU electronics

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	FY 2004	FY 2005	FY 2006	FY 2007
Manufacturing Process Improvements	1,774	1,996	1,585	2,592
RDT&E Articles (Quantity)	0	0	0	0

FY 2004 Program Accomplishments:

- Initiated new contract for Lean Pathways at end of FY04
- Co-funded with Navy a new initiative that will improve the readiness, mission capability, and life-cycle affordability of Navy/MDA weapon systems by developing an enterprise-wide capability for integrating technology refresh tools
- Leveraged a DLA investment to focus the Robust Lean Supply Network (RLSN) effort on MDA programs (SM3, KEI, MKV)

FY 2005 Planned Accomplishments:

- Continue Technology Refresh efforts
- Initiate Tin Whisker effort to better understand the physics of failure
- Develop processes for robotic soldier dipping of leads and embedding die on printed circuit cards to mitigate tin whisker risk
- Continue RLSN efforts to develop, demonstrate, and deploy tools to evaluate risks in the supply chain of weapons systems
- Continue inter-service activities in manufacturing technology, EMRLs/MRLs, and batteries
- Conduct Lean Pathways events at several prime/original equipment manufacturers (OEMs) and supplier companies

FY 2006 Planned Program:

- Complete RLSN effort
- Continue efforts to mitigate tin whisker growth risk
- Continue inter-service activities in manufacturing technology
- Begin deploying technology refresh tools
- Continue Lean Pathway events at several prime/OEMs and supplier companies

FY 2007 Planned Program:

- Implement embedded die process in the BMDS
- Host the Defense Manufacturing Conference
- Expand Lean Pathways to other BMDS customers
- Integrate technology refresh and critical supplier results into corporate MDA risk mitigation strategy

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

	FY 2004	FY 2005	FY 2006	FY 2007
Electro-Optics/Infrared (EO/IR)	8,374	8,096	5,585	5,592
RDT&E Articles (Quantity)	0	0	0	0

FY 2004 Program Accomplishments:

- Improved producibility of Advanced RH Very Long Wavelength Infrared (VLWIR) detectors
- Enabled a second source for operational testing of the Two Color Focal Plane Array (FPA)
- Commenced a program to enable a low cost RH Hybrid Visible Sensor
- Established program to enable Silicon Carbide (SiC) as an alternative material for optical mirror and structure
- Advanced Cryocooler thermal unit and conducted cost analysis identifying electronics as two thirds of cryocooler costs

FY 2005 Planned Accomplishments:

- RH Scalable Missile Telescopes - low cost alternative materials and processing development and assessment
- SiC Mirrors polishings and coatings technology development
- Two Color (LW/LW) Detector producibility and radiation tolerant assessment
- Light Detection and Ranging (LIDAR) Detector development to improve detector sensitivity enabling improvement detection range
- Laser RADAR (LADAR) device performance testing
- Space Cryocooler Thermal and Electronics development and assessment
- Two Color (LW/LW) Environmental Testing for missile kill vehicle applications
- Development of improved RH (proton radiation) large 256X256 array VLWIR Detectors for satellite surveillance applications
- RH Visible Sensors development for satellite and surveillance applications
- Stacked Electronics Processing development and assessment to improve density and radiation tolerance of missile kill vehicle electronics

FY 2006 Planned Program:

- RH Scalable Missile Telescopes - optical component alignment technology and development
- SiC Mirrors polishing preprocessing and radiation hardened coatings technology development
- LIDAR Detector development to improve detector sensitivity enabling improvement detection range
- Satellite payload radiation hardened electronics development and assessment
- Development of improved RH (proton radiation) large 256X256 array VLWIR Detectors for missile and satellite surveillance applications
- RH Visible Sensors development for missile and satellite surveillance applications

FY 2007 Planned Program:

- RH Scalable Missile Telescopes - radiation hardening of alternative materials and assessment
- SiC Mirrors polishing and radiation hardened coatings technology development
- LIDAR Detector radiation hardening

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

- Development of improved RH (proton radiation) large 256X256 array VLWIR Detectors for missile and satellite surveillance applications
- RH Visible Sensors development for missile and satellite surveillance applications

	FY 2004	FY 2005	FY 2006	FY 2007
Radar & RF	2,274	3,296	3,585	3,592
RDT&E Articles (Quantity)	0	0	0	0

FY 2004 Program Accomplishments:

- Established MDA's High Power Electronics Reliability Test program - initiated reliability testing of High Voltage Gallium Arsenide (GaAs) Microwave Monolithic Integrated Circuits (MMICs) at the Naval Research Laboratory (NRL)
- Continued the Joint Silicon Carbide (SiC) MMIC Producibility Enhancement program - produced 3-inch diameter semi-insulating SiC wafers with MMIC yield
- Continued the Joint High Voltage GaAs MMIC Producibility program - produced first MMIC lots

FY 2005 Planned Accomplishments:

- Continue the High Power Electronics Reliability Test program - continue reliability testing of High Voltage GaAs MMICs at NRL and initiate reliability testing of Gallium Nitride (GaN) MMICs at NRL, NSWC-Crane, PSU-ARL, and AFRL
- Continue the Joint SiC MMIC Producibility Enhancement program - produce 3-inch diameter semi-insulating SiC wafers with greater MMIC yield
- Complete the Joint High Voltage GaAs MMIC Producibility program - produce MMIC lots for independent reliability testing
- Initiate the 4-inch Diameter Semi-Insulating (SI) SiC Wafer Producibility program
- Initiate Moduleless Transmit/Receive Integrated Microwave Modules (TRIMM) program
- Conduct Hardware-in-the-Loop (HWIL) testing of Advanced Optical Processor (AOP) 2 Architecture - field testing to gather target data

FY 2006 Planned Program:

- Continue the High Power Electronics Reliability Test program - complete reliability testing of High Voltage GaAs MMICs at NRL and continue reliability testing of GaN MMICs at NRL, NSWC-Crane, PSU-ARL, and AFRL
- Complete the Joint SiC MMIC Producibility Enhancement program - produce 3-inch diameter semi-insulating SiC wafers with greater MMIC yield
- Continue the 4-inch Diameter SI SiC Wafer Producibility program - introduce second source for 4-inch SI SiC wafers
- Develop and design Moduleless TRIMM architecture

FY 2007 Planned Program:

- Continue the High Power Electronics Reliability Test program - continue reliability testing of GaN MMICs at NRL, NSWC-Crane, PSU-ARL, and AFRL
- Continue the 4-inch Diameter SI SiC Wafer Producibility program - produce 4-inch SI SiC wafers from multiple vendors
- Initiate the 4-inch diameter SI GaN Wafer Producibility program
- Fabricate and test Moduleless TRIMMs

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

	FY 2004	FY 2005	FY 2006	FY 2007
Propulsion	4,399	4,296	2,885	3,092
RDT&E Articles (Quantity)	0	0	0	0

FY 2004 Program Accomplishments:

- Successful Throttling Divert and Attitude Control System (TDACS) Component, Subsystem and System Level Testing demonstrating TDACS configuration during flight-type duty cycle
- Populated the Carbon Silicon Carbide (C-SiC) material database for high temperature applications for C-SiC
- Developed a basic design of experiment for the THAAD DACS low temperature combustion instability
- Began the design and initial fabrication of an Exploding Foil Deflagrating Initiator (EFDI) as part of a Mil Std 1901A compliant Initiation Safety Device

FY 2005 Planned Accomplishments:

- Characterize C-SiC material properties from alternate sources to evaluate manufacturing process variation on material strength under high temperature, high pressure operation
- Initiate a producibility improvement for the TDACS divert thruster system, using braided C-SiC, to reduce part count and improve performance for BMDS applications
- Develop concept definition of proportional controlled solid DACS components for application to BMDS interceptors
- Execute efforts to address insensitive munitions for Missile Defense Systems

FY 2006 Planned Program:

- Execute hot gas testing of braided C-SiC thruster assemblies developed in FY05
- Continue material characteristics testing of high temperature materials for propulsion system applications
- Evaluate near term technologies to address insensitive munitions issues within the BMDS
- Hot fire test component demonstrations developed as part of the concept definition for proportional controlled solid DACS systems
- Further mature proportional DACS technologies for application to Midcourse and Boost defense missions

FY 2007 Planned Program:

- Continue efforts from FY05 and FY06 to address materials and subsystem design and development to reduce cycle time, part count, risk and improve performance of axial and divert propulsion systems for the BMDS

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

	FY 2004	FY 2005	FY 2006	FY 2007
Advanced Materials & Structures	3,098	3,276	2,084	3,095
RDT&E Articles (Quantity)	0	0	0	0

FY 2004 Program Accomplishments:

- EKV Composite Sunshade - significant reductions in cost from current baseline component
- EKV Composite Electronic Unit Housing Assembly - significant reductions in cost, increased heat dissipating capability and improved compatibility with the upgraded computer processor unit
- Integrated heat shield coupon materials identified and prepared for heat testing at the Air Force Arnold Research Development and Engineering Center

FY 2005 Planned Accomplishments:

- Composite Mirror Structure - develop an assembly more amenable to radiation hardening at a reduced cost
- Liquid Divert and Attitude Control System (LDACS) Structure - develop compatibility with both KEI and EKV at a reduced cost
- KEI Radome - meet schedule milestones and produce better performing products at a reduced cost
- KEI Payload Adapter - produce prototype hardware at a reduced cost in time for preliminary design review and dynamic inert model tests
- KEI Nosecone - develop an improved nosecone at a reduced cost

FY 2006 Planned Program:

- Composite Mirror Structure - continue to develop an assembly more amenable to radiation hardening at a reduced cost
- Liquid Divert and Attitude Control System (LDACS) Structure - continue to develop compatibility with both KEI and EKV at a reduced cost
- KEI Radome - continue to meet schedule milestones and produce better performing products at a reduced cost
- KEI Payload Adapter - continue to produce prototype hardware at a reduced cost in time for preliminary design review and dynamic inert model tests
- KEI Nosecone - continue to develop an improved nosecone at a reduced cost

FY 2007 Planned Program:

- Continue to focus on advanced materials in radiation hardening, structures, mirrors, thermal management and propulsion that could assist modular or scalable efforts on kill vehicles and missile structures that reduce cycle times and enhance BMDS performance

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

C. Other Program Funding Summary

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	226,765	231,145	136,241	184,877	197,229	205,191	212,435	218,763	1,612,646
PE 0603879C Advanced Concepts, Evaluations and Systems	132,701	159,878	0	0	0	0	0	0	292,579
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	860,794	928,388	1,143,610	1,034,676	879,674	617,319	731,282	485,512	6,681,255
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3,731,708	4,521,019	3,266,196	3,945,991	3,650,848	3,315,513	3,183,622	2,545,882	28,160,779
PE 0603883C Ballistic Missile Defense Boost Defense Segment	475,911	476,179	483,863	648,728	620,793	690,807	811,430	1,183,182	5,390,893
PE 0603884C Ballistic Missile Defense Sensors	417,814	577,297	529,829	995,711	1,214,008	1,186,134	1,069,208	1,018,614	7,008,615
PE 0603886C Ballistic Missile Defense System Interceptors	114,669	279,815	229,658	444,900	677,243	1,137,337	1,468,827	1,717,507	6,069,956
PE 0603888C Ballistic Missile Defense Test and Targets	616,773	720,818	622,357	684,170	608,282	643,119	661,362	670,092	5,226,973
PE 0603889C Ballistic Missile Defense Products	309,949	383,830	455,152	509,982	509,161	516,599	516,017	515,729	3,716,419
PE 0603890C Ballistic Missile Defense System Core	449,747	399,829	447,006	538,442	532,412	530,934	520,679	531,832	3,950,881
PE 0603891C Special Programs - MDA	0	0	349,522	482,903	826,173	1,097,252	1,015,198	1,244,072	5,015,120
PE 0605502C Small Business Innovative Research - MDA	146,030	0	0	0	0	0	0	0	146,030
PE 0901585C Pentagon Reservation	16,251	13,761	17,386	15,586	6,058	6,376	4,490	4,725	84,633
PE 0901598C Management Headquarters - MDA	92,100	113,777	99,327	95,443	98,984	98,728	81,492	81,760	761,611
Air Force – Other Procurement	0	0	2,400	1,453	11,279	386	17,710	25,709	58,937
Air Force – Operations and Maintenance	0	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
Air Force – Military Personnel	0	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
Army – Operations and Maintenance	37,600	49,597	66,974	68,246	69,809	71,472	73,325	75,230	512,253
Army National Guard – Operations and Maintenance	0	0	155	151	150	154	164	167	941
Army National Guard – Military Personnel	21,000	21,000	17,648	24,432	24,952	25,591	25,591	25,591	185,805
Navy – Operations and Maintenance	0	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PAC-3/MEADS – RDT&E	433,728	344,978	304,973	336,959	465,395	521,791	522,418	502,961	3,433,203
PAC-3/MEADS – Missile Procurement	841,964	574,972	581,924	578,579	660,584	616,020	509,032	738,679	5,101,754

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

D. Acquisition Strategy

Producibility and Manufacturing Technology (MP) adheres to MDA's capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks. Working with the BMDS Elements, MP identifies and executes programs that improve manufacturing and producibility for the BMDS. This is accomplished by leveraging maturing manufacturing technologies with the services and other government agencies. MP also leverages industry investments and uses Element cost share in hardware for component producibility improvements. For efficiency, MP utilizes existing MDA and service contract vehicles when possible to execute the program.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Power Systems										
Battery Efforts	MIPR	NSWC/ Crane, IN	900	3,240	1Q	2,700	1Q	2,700	1Q	9,540
Radiation Hardening										
Rad Hard	Various	AFRL/ Kirtland, NM	2,200	3,634	1Q	2,594	1Q	4,879	1Q	13,307
Rad Hard	Various	SMDC/ Huntsville, AL	1,950	2,644	1Q	1,701	1Q	3,458	1Q	9,753
Rad Hard	MIPR	Various	1,430	3,157	2Q	2,163	2Q	4,194	1/2Q	10,944
Manufacturing Process Improvements										
Tech Refresh/RLSN	CPFF	ATI	600	700	1Q	550	1Q	300	1Q	2,150
Tin Whisker	CPFF	ONR/VA	300	350	1Q	300	1Q	300	1Q	1,250
Manufacturing Processes	MIPR	Various	180	30	1Q	50	1Q	1,200	1/2Q	1,460
Electro-Optics/Infrared (EO/IR)										
EO/IR	Various	AFRL/ Kirtland, NM	3,750	2,880	2Q	1,920	1Q	1,920	1Q	10,470
EO/IR	CPFF	Fibertek/ Hendon, VA	2,000	1,620	1/2Q	1,080	1/2Q	1,080	1Q	5,780
EO/IR	Various	SMDC/ Huntsville, AL	1,270	2,250	1Q	1,500	1Q	1,500	1Q	6,520
Radar & RF										
SiC MMIC	CPFF	CREE/NC/ Triquint/TX	540	360	1Q	400	1Q	400	1Q	1,700
RF Device Test	MIPR	NRL/ Washington, DC	225	693	1Q	770	1Q	770	1Q	2,458
High Voltage GaAs	CPFF	Triquint/TX	450	567	1Q	630	1/2Q	630	1/2Q	2,277
RF	MIPR	Various	315	810	1Q	900	1Q	900	1Q	2,925

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Propulsion										
SMDC	CPFF	Aerojet/ Sacramento, CA	2,430	1,980	1Q	1,231	1Q	1,338	1Q	6,979
Propulsion	MIPR	NSWCCD/MD	350	450	1Q	280	1Q	304	1Q	1,384
Propulsion	MIPR	ATK/Elkton, MD	350	450	1Q	280	1Q	304	1Q	1,384
Propulsion	MIPR	Various	313	450	2Q	280	2Q	304	2Q	1,347
Advanced Materials & Structures										
Advanced Materials	CPFF	San Diego Composites/ San Diego, CA	500	1,535	1Q	853	1Q	1,421	1Q	4,309
Advanced Materials	CPFF	Mentis Sciences, Inc./ Manchester, NH	200	428	1Q	238	1Q	396	1Q	1,262
Advanced Structures	Various	SMDC/ Huntsville, AL	1,572	468	1Q	260	1Q	433	1Q	2,733
Subtotal Product Development			21,825	28,696		20,680		28,731		99,932

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Power Systems										
Battery Efforts	MIPR	NSWC/ Crane, IN	100	360	1Q	324	1/2Q	326	1/2Q	1,110
SETA	FFP	DRC, SPARTA/ VA	389	395	1Q	356	1Q	356	1Q	1,496
Radiation Hardening										

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Rad Hard	Various	AFRL/ Kirtland, NM	300	410	1Q	376	1Q	537	1Q	1,623
Rad Hard	Various	SMDC/ Huntsville, AL	200	300	1Q	275	1Q	393	1Q	1,168
Rad Hard	MIPR	Various	120	357	1Q	327	1Q	468	1Q	1,272
SETA	FFP	DRC, SPARTA/ VA	389	395	1Q	363	1Q	517	1Q	1,664
Manufacturing Process Improvements										
Tech Support	MIPR	REDCOM/AL	60	120	1Q	96	1Q	117	1Q	393
Tech Support	MIPR	NSWC/ Crane, IN	40	120	1Q	77	1Q	94	1Q	331
JDMTP	MIPR	ONR/VA	20	80	2Q	51	2Q	63	2Q	214
SETA	FFP	DRC, SPARTA/ VA	389	395	1Q	256	1Q	308	1Q	1,348
Electro-Optics/Infrared (EO/IR)										
EO/IR	Various	AFRL/ Kirtland, NM	400	320	2Q	246	1/2Q	247	1/2Q	1,213
EO/IR	CPFF	Fibertek/ Herndon, VA	255	180	2Q	138	1/2Q	139	1/2Q	712
EO/IR	Various	SMDC/ Huntsville, AL	125	250	1Q	192	1Q	193	1Q	760
SETA	FFP	DRC, SPARTA/ VA	389	395	1Q	304	1Q	303	1Q	1,391
Radar & RF										
SiC MMIC	CPFF	CREE/NC/ Triquint/TX	60	40	1Q	41	1Q	41	1Q	182

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
RF Device Test	MIPR	NRL/ Washington, DC	50	63	1Q	64	1Q	65	1Q	242
High Voltage GaAs	CPFF	Triquint/TX	25	77	1Q	79	1/2Q	79	1/2Q	260
RF	Various	Various	35	90	1Q	92	1Q	92	1Q	309
SETA	FFP	DRC, SPARTA/ VA	389	395	1Q	404	1Q	405	1Q	1,593
Propulsion										
SMDC	CPFF	Aerojet/ Sacramento, CA	270	220	1Q	175	1Q	182	1Q	847
Propulsion	MIPR	NSWCCD/MD	45	50	1Q	40	1Q	41	1Q	176
Propulsion	MIPR	ATK/ Elkton, MD	45	50	1Q	40	1Q	41	1Q	176
Propulsion	MIPR	Various	23	50	2Q	40	1/2Q	41	1/2Q	154
SETA	FFP	DRC, SPARTA/ VA	389	395	1Q	314	1Q	327	1Q	1,425
Advanced Materials & Structures										
Advanced Materials	CPFF	San Diego Composites/ San Diego, CA	50	171	1Q	136	1Q	162	1Q	519
Advanced Materials	CPFF	Mentis Sciences, Inc./ Manchester, NH	20	48	1Q	38	1Q	45	1Q	151
Advanced Structures	Various	SMDC/ Huntsville, AL	181	30	1Q	41	1Q	49	1Q	301
SETA	FFP	DRC, SPARTA/ VA	389	395	1Q	313	1Q	379	1Q	1,476
Subtotal Support Costs			5,147	6,151		5,198		6,010		22,506

Remarks

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										

Remarks

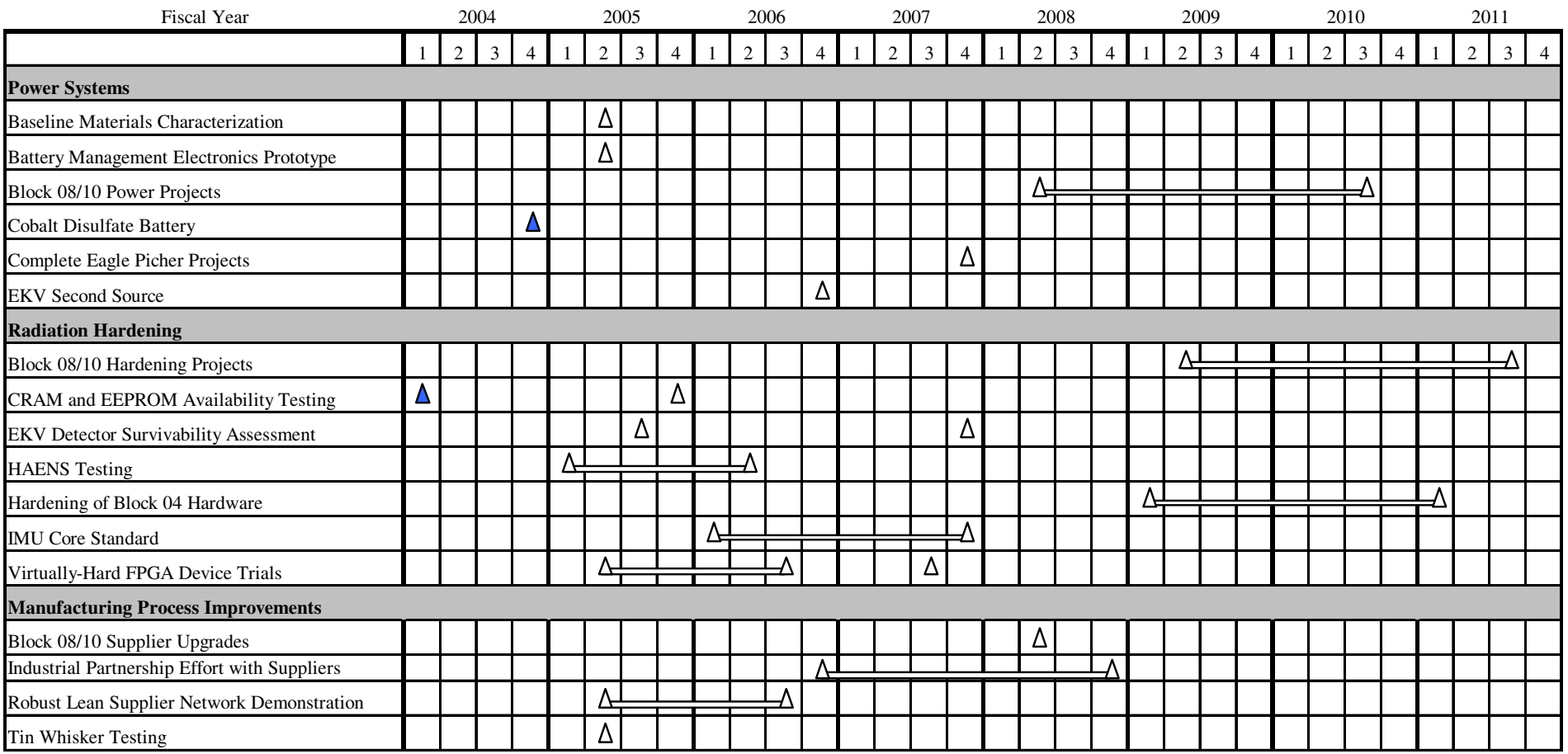
IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Power Systems										
Govt Personnel		MDA/ VA	185	201	1/2Q	205	1/2Q	210	1/2Q	801
Radiation Hardening										
Govt Personnel		MDA/ VA	185	201	1/2Q	205	1/2Q	210	1/2Q	801
Manufacturing Process Improvements										
Govt Personnel		MDA/ VA	185	201	1/2Q	205	1/2Q	210	1/2Q	801
Electro-Optics/Infrared (EO/IR)										
Govt Personnel		MDA/ VA	185	201	1/2Q	205	1/2Q	210	1/2Q	801
Radar & RF										
Govt Personnel		MDA/ VA	185	201	1/2Q	205	1/2Q	210	1/2Q	801
Propulsion										
Govt Personnel		MDA/ VA	185	201	1/2Q	205	1/2Q	210	1/2Q	801

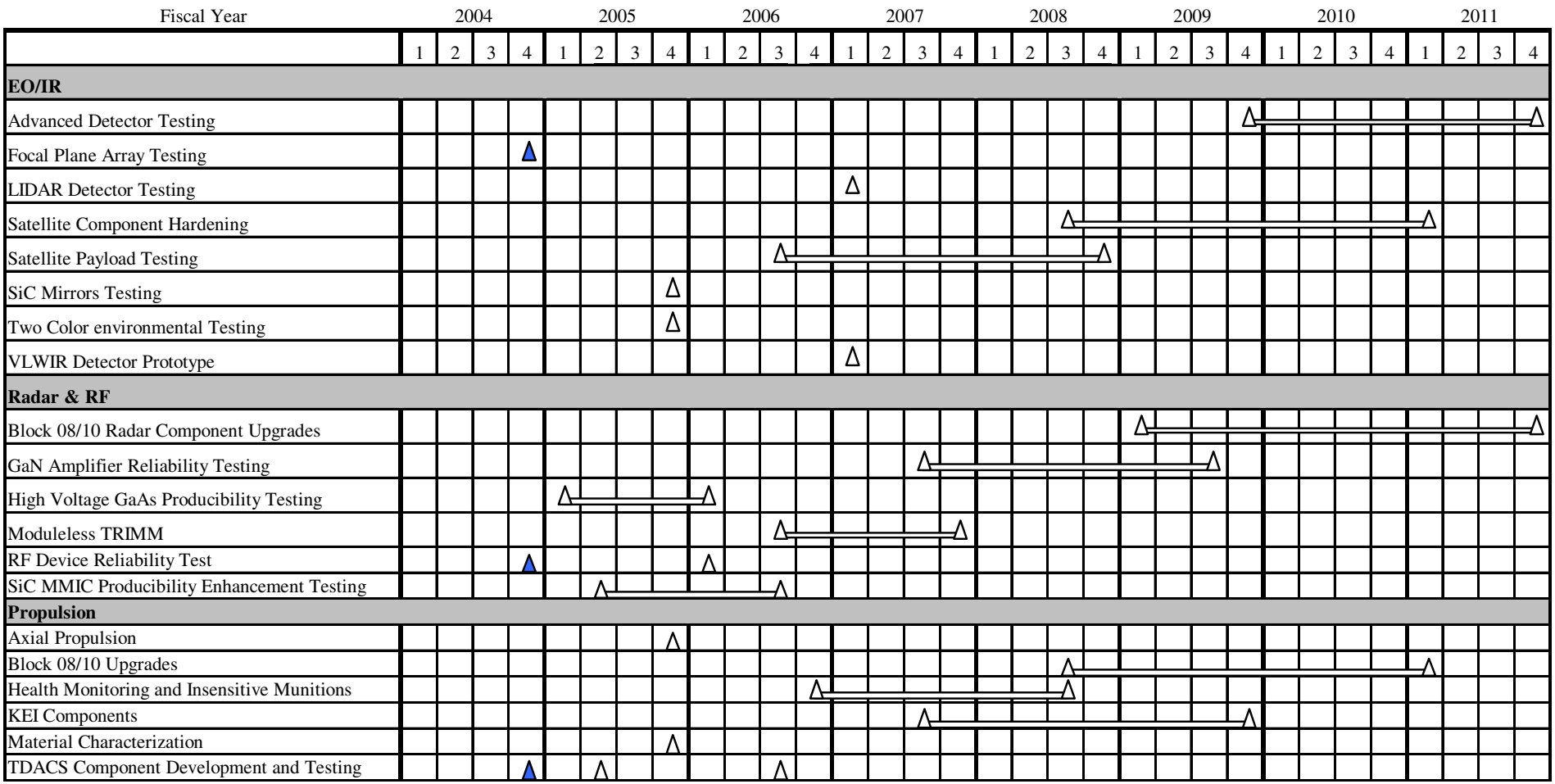
Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Advanced Materials & Structures										
Govt Personnel		MDA/ VA	185	201	1/2Q	205	1/2Q	210	1/2Q	801
Subtotal Management Services			1,295	1,407		1,435		1,470		5,607
Remarks										
Project Total Cost			28,267	36,254		27,313		36,211		128,045
Remarks										

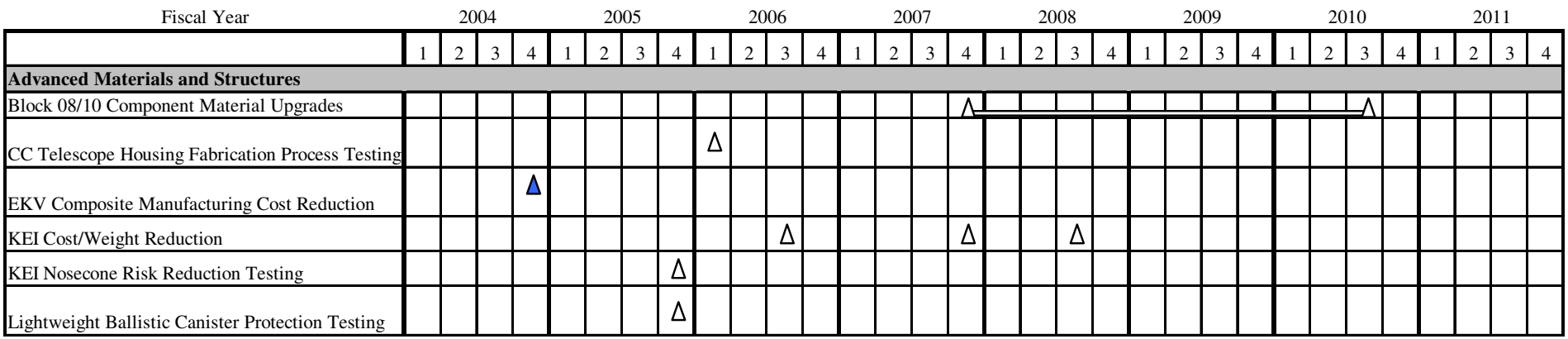
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Power Systems								
Baseline Materials Characterization		2Q						
Battery Management Electronics Prototype		2Q						
Battery Manufacturing Improvements		1Q-4Q	1Q-2Q					
Block 08/10 Power Projects					2Q-4Q	1Q-4Q	1Q-3Q	
Cobalt Disulfate Battery	4Q							
Complete Eagle Picher Projects				4Q				
Computer Aided Process/Planning		4Q						
EKV Second Source			4Q					
Relocation of Oxyhalide Production Line		3Q						
Solar & Fuel Cells, High Capacity Storage Devices			4Q					
Technology Roadmap Planning Meeting		2Q						
Radiation Hardening								
Block 08/10 Hardening Projects						2Q-4Q	1Q-4Q	1Q-3Q
COTS FPGA Assessment		2Q						
CRAM and EEPROM Availability Testing	1Q	4Q						
Detector Testing		4Q						
EKV Detector Survivability Assessment		3Q		4Q				
HAENS Testing		1Q-4Q	1Q-2Q					
Hardening of Block 04 Hardware						1Q-4Q	1Q-4Q	1Q
IMU Core Standard			1Q-4Q	1Q-4Q				
Rad Hard Catalog		1Q-4Q	1Q-3Q					
Rad Hard common Processor			1Q					
THAAD Detector/IMU Survivability Assessment			1Q					
Virtually-Hard FPGA Device Trials		2Q-4Q	1Q-3Q	3Q				
Manufacturing Process Improvements								
Block 08/10 Supplier Upgrades					2Q			
Industrial Partnership Effort with Suppliers			4Q	1Q-4Q	1Q-4Q			
Robust Lean Supplier Network Demonstration		2Q-4Q	1Q-3Q					
Technology Refresh		2Q						
Tin Whisker Testing		2Q						
EO/IR								

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Advanced Detector Testing						4Q	1Q-4Q	1Q-4Q
Focal Plane Array Testing	4Q							
Hybrid Stirling/Cryocooler			4Q					
Hybrid/Stirling Cryocooler Electronics			1Q					
LIDAR Detector Testing				1Q				
Satellite Component Hardening					3Q-4Q	1Q-4Q	1Q-4Q	1Q
Satellite Payload Testing			3Q-4Q	1Q-4Q	1Q-4Q			
Scalable SiC Mirror Assembly/Inspection			1Q					
SiC Mirrors Testing		4Q						
Stacked Electronics Processing Prototypes		4Q						
Two Color FPA		3Q						
Two Color environmental Testing		4Q						
VLWIR Detector Prototype				1Q				
Visible Hybrid Detector				1Q				
Radar & RF								
Block 08/10 Radar Component Upgrades						1Q-4Q	1Q-4Q	1Q-4Q
GaN Amplifier Reliability Testing				3Q-4Q	1Q-4Q	1Q-3Q		
High Voltage GaAs Producibility Testing		1Q-4Q	1Q					
Moduleless TRIMM			3Q-4Q	1Q-4Q				
RF Device Reliability Test	4Q		1Q					
SiC MMIC Producibility Enhancement Testing		2Q-4Q	1Q-3Q					
Propulsion								
Axial Propulsion		4Q						
Block 08/10 Upgrades					3Q-4Q	1Q-4Q	1Q-4Q	1Q
Health Monitoring and Insensitive Munitions			4Q	1Q-4Q	1Q-3Q			
KEI Components				3Q-4Q	1Q-4Q	1Q-4Q		
Material Characterization		4Q						
TDACS Component Development and Testing	4Q	2Q	3Q					
Advanced Materials and Structures								
Block 08/10 Component Material Upgrades				4Q	1Q-4Q	1Q-4Q	1Q-3Q	
CC Telescope Housing Fabrication Process Testing			1Q					
EKV Composite Manufacturing Cost Reduction	4Q							

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
KEI Cost/Weight Reduction			3Q	4Q	3Q			
KEI Nosecone Risk Reduction Testing		4Q						
KEI Payload Shock and Vibration Mitigation Testing				1Q				
KEI Radome Development Testing		4Q						
LDACS Structure Development Testing		4Q						
Lightweight Ballistic Canister Protection Testing		4Q						

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

COST ($ in Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0202 Hercules Core	20,955	0	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note:
In FY 2005, Project 0202, Hercules Core, is moved to PE 0603889C, Ballistic Missile Defense Products, Projects 0802, 0902, and 0002, Project Hercules Blocks 06, 08, and 10 respectively.

A. Mission Description and Budget Item Justification

This Project covers the core elements of Project Hercules. The Hercules products are described in PE 0603889C, Projects 0802 and 0902. Project Hercules is a national effort to develop robust detection, tracking, and discrimination algorithms to counter off nominal and evolving missile threats. Hercules is also developing a physics-based Decision Architecture that applies advanced decision theory to future BMD System Command, Control, and Battle Management (C2BM) concepts. In addition to a general program to develop algorithms useful against targets in all phases of flight, Hercules has specific projects to develop algorithms for forward based sensors, the Decision Architecture, and mitigating countermeasures. Hercules develops algorithms to enhance BMD System element capabilities in Block 06, 08 and beyond and will provide these algorithms to the BMD System elements for insertion into their respective programs. Project Hercules Core activities include the collection and analysis of flight test data, systems engineering, the Hercules test bed infrastructure, and the development of models and simulations generalized for off nominal and evolving threats.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Project Hercules	20,955	0	0	0
RDT&E Articles (Quantity)	0	0	0	0

- Hercules successfully participated in the Red Dog countermeasure flight test campaign in FY03 and began the extensive analysis necessary to incorporate the results of the flight tests into countermeasure models and tracking and discrimination algorithms. Additional flight test support and post-flight data analysis are planned for most major MDA flight tests.
- System engineering is performed by Hercules to ensure algorithms addressing specific enemy missile threats or phases of flight can be integrated into overarching algorithm concepts or C2/BM concepts such as the Decision Architecture.
- Hercules completed successful live time testing of discrimination algorithms and elements of the Decision Architecture, an approach to applying advanced decision theory concepts to C2BMC. Hercules also completed several digital test program studies used to characterize the break points of algorithms developed within Hercules. The live time and digital testing infrastructure funded under the BMD Core PE is necessary to support risk reduction tests associated with transitioning Hercules technology into all BMD elements.
- Models and simulations have been and continue to be developed and upgraded within Hercules to expand the ability of Hercules to address the off-nominal and evolving missile threats. The boost, midcourse, and terminal phase algorithm development teams and the forward based sensor, decision architecture, and clutter mitigation teams all need advanced models and simulations to develop their algorithms.

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

C. Other Program Funding Summary

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	226,765	231,145	136,241	184,877	197,229	205,191	212,435	218,763	1,612,646
PE 0603879C Advanced Concepts, Evaluations and Systems	132,701	159,878	0	0	0	0	0	0	292,579
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	860,794	928,388	1,143,610	1,034,676	879,674	617,319	731,282	485,512	6,681,255
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3,731,708	4,521,019	3,266,196	3,945,991	3,650,848	3,315,513	3,183,622	2,545,882	28,160,779
PE 0603883C Ballistic Missile Defense Boost Defense Segment	475,911	476,179	483,863	648,728	620,793	690,807	811,430	1,183,182	5,390,893
PE 0603884C Ballistic Missile Defense Sensors	417,814	577,297	529,829	995,711	1,214,008	1,186,134	1,069,208	1,018,614	7,008,615
PE 0603886C Ballistic Missile Defense System Interceptors	114,669	279,815	229,658	444,900	677,243	1,137,337	1,468,827	1,717,507	6,069,956
PE 0603888C Ballistic Missile Defense Test and Targets	616,773	720,818	622,357	684,170	608,282	643,119	661,362	670,092	5,226,973
PE 0603889C Ballistic Missile Defense Products	309,949	383,830	455,152	509,982	509,161	516,599	516,017	515,729	3,716,419
PE 0603890C Ballistic Missile Defense System Core	449,747	399,829	447,006	538,442	532,412	530,934	520,679	531,832	3,950,881
PE 0603891C Special Programs - MDA	0	0	349,522	482,903	826,173	1,097,252	1,015,198	1,244,072	5,015,120
PE 0605502C Small Business Innovative Research - MDA	146,030	0	0	0	0	0	0	0	146,030
PE 0901585C Pentagon Reservation	16,251	13,761	17,386	15,586	6,058	6,376	4,490	4,725	84,633
PE 0901598C Management Headquarters - MDA	92,100	113,777	99,327	95,443	98,984	98,728	81,492	81,760	761,611
Air Force – Other Procurement	0	0	2,400	1,453	11,279	386	17,710	25,709	58,937
Air Force – Operations and Maintenance	0	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
Air Force – Military Personnel	0	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
Army – Operations and Maintenance	37,600	49,597	66,974	68,246	69,809	71,472	73,325	75,230	512,253
Army National Guard – Operations and Maintenance	0	0	155	151	150	154	164	167	941
Army National Guard – Military Personnel	21,000	21,000	17,648	24,432	24,952	25,591	25,591	25,591	185,805
Navy – Operations and Maintenance	0	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PAC-3/MEADS – RDT&E	433,728	344,978	304,973	336,959	465,395	521,791	522,418	502,961	3,433,203
PAC-3/MEADS – Missile Procurement	841,964	574,972	581,924	578,579	660,584	616,020	509,032	738,679	5,101,754

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

D. Acquisition Strategy

Project Hercules follows MDA's capability-based acquisition strategy. This emphasizes assessment, spiral-development testing and evolutionary acquisition through the definition of two-year capability blocks.

Project Hercules activities are performed by subject matter experts composed of Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), private industry including major defense contractors, Government laboratories, and System Engineering and Technical Assistance (SETA) contractors.
Capabilities can be transitioned into future operational force structure by integrating the Hercules concepts into MDA elements. MDA element managers then coordinate with the Services and their acquisition community so they can plan, budget, and procure necessary hardware and software for operational deployed and sustained forces.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Product Development										

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Project Hercules										
MIT/LL	CPFF	Hanscomb AFB	4,067	0	N/A	0	N/A	0	N/A	4,067
SEG		NSWC-Corona, CA	1,093	0	N/A	0	N/A	0	N/A	1,093
Northrop Grumman XonTech	CPFF	Van Nuys, CA	2,758	0	N/A	0	N/A	0	N/A	2,758
SMDC Hercules	Various	Various	1,144	0	N/A	0	N/A	0	N/A	1,144
MDA Hercules	Various	Various	2,752	0	N/A	0	N/A	0	N/A	2,752
AFRL - Eglin AFB	Various	Various	825	0	N/A	0	N/A	0	N/A	825
Subtotal Support Costs			12,639	0		0		0		12,639

Remarks

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Project Hercules										
Northrop Grumman XonTech	CPFF	Van Nuys, CA	1,710	0	N/A	0	N/A	0	N/A	1,710
SMDC Hercules	Various	Various	1,420	0	N/A	0	N/A	0	N/A	1,420
MDA Hercules	Various	Various	710	0	N/A	0	N/A	0	N/A	710

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
AFRL-Eglin AFB	Various	Various	820	0	N/A	0	N/A	0	N/A	820
Subtotal Test and Evaluation			4,660	0		0		0		4,660

Remarks

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Project Hercules										
CSC-SETA	FFP	Fairfax, VA	1,926	0	N/A	0	N/A	0	N/A	1,926
SPARTA-SETA	FFP	Arlington, VA	1,730	0	N/A	0	N/A	0	N/A	1,730
Subtotal Management Services			3,656	0		0		0		3,656

Remarks

Project Total Cost			20,955	0		0		0		20,955

Remarks

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Fiscal Year	2004				2005				2006				2007				2008				2009				2010				2011			
	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
Project Hercules																																
Program Review	▲																															

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Hercules								
Program Review	1Q							

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

COST ($ in Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0104 BMD Information Management Systems	37,535	61,453	125,257	184,869	166,755	156,754	140,597	145,213
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note:
In FY 2004, Project 0104 was increased to ensure Information Assurance (IA) and Information Technology (IT) security operations were in place for the BMDS Initial Defensive Operations (IDO). Projects include certification and accreditation of the BMDS and other networks and systems; implementation of the Enterprise Network Operations Security Center (ENOSC) to monitor and ensure network security; implementation of more reliable communications to promote information sharing such as video teleconferencing capabilities which enable MDA senior leadership to communicate in a safe, efficient and cost effective method with the Combatant Commanders during IDO and beyond; and, expansion of classified connectivity to MDA sites around the country.

In FY 2006 through FY 2011, there is an increase in Project 0104 due to the Computing Infrastructure, Computing and Network Management Services, and Information Distribution Services being consolidated from PE 0901598C into this PE and Project.

FY 2006 includes and increase of $18M identified for the communications and computing infrastructure of the MDA facility located at the Von Braun Complex in Huntsville, Alabama. FY 2007 through FY 2011 shows an increase of $9M per year for the recurring operations and sustainment costs for that Complex. The facility will consolidate several MDA locations in the Huntsville area into one campus environment.

FY 2007 includes an increase of $42M to the Computing Infrastructure initiative to fund the engineering, cabling installation and testing, computing hardware and software necessary to lay in the communications and computing infrastructure of the MDA Campus environment to accomplish the consolidation of MDA employees in the National Capital Region (NCR) currently in several locations around the NCR. FY 2007, FY 2008 and FY 2009 includes $13.8M, 11.9M and 12.2M, respectively in the Computing and Network Management Services initiative to operate and maintain continuity of operations of the MDA networks and to facilitate the staging of moves until it is completed in FY 2008.

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) Information Management Systems Project 0104 integrates and supports every aspect of the BMD System (BMDS) by providing a secure and reliable Information Technology (IT) infrastructure and the Information Management/Information Technology (IM/IT) services necessary to enable the BMDS System elements and operators to collaborate and share information which is essential to accomplishing the complex integrated BMDS mission and achieving Initial Defensive Operations (IDO). This project is an essential and integral component of the BMDS Core Program Element (PE) because it funds the Agency's communications backbone and infrastructure that enables all the Projects in all the PEs to communicate in a safe, secure and affordable manner. The mission of the CIO is to ensure that MDA IM/IT assets are administered, acquired, managed and operated in compliance with and meet the goals of existing statutes and DoD regulations, in particular the President's Management Agenda, the Clinger-Cohen Act, the E-Government Act of 2002, the Government Paperwork Elimination Act, and the Office of Management and Budget (OMB) requirements to align IT investments with the Federal Enterprise Architecture (FEA).

Project 0104 includes initiatives that are vital to the strategic mission of the Agency such as the MDA Enterprise Communications Infrastructure. This initiative includes costs required to obtain access to the classified Secret Internet Protocol Router Network (SIPRNET), Missile Defense Agency Network (MDANet), classified and unclassified Video Teleconferencing circuits and the Joint Worldwide Intelligence Connectivity System (JWICS). Connectivity to JWICS is essential to the MDA Intelligence project to obtain and provide intelligence data used to feed the Command, Control, Battle Management and Communication (C2BMC) project, the Hercules Project, the Countermeasures/Counter-Countermeasures (CM/CCM) project, and the Modeling and Simulation project. This Project funds initiatives that support the MDA Systems Engineering and Integration (SEI) mission for the BMDS System including: - Information Assurance (IA) and Computer Network Defense (CND) management and Certification and Accreditation (CA) support to the Ballistic Missile Defense System (BMDS) and all elements networks required for BMDS IDO; - Establishing electronic business practices and processes that help achieve more effective, efficient and secure business and mission support activities throughout the MDA enterprise; - Creating an IM/IT Enterprise Architecture to support information needs, solutions and standards for the business and mission support activities of the MDA; - Creating an IM/IT Enterprise Architecture that allows both information sharing, electronic records management, financial management, and decision support using web-based technologies; - Providing policy, guidance, planning, oversight, and monitoring to

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
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enable the MDA enterprise with IM/IT capabilities to comply with statutes, regulations, directives, and policies; - Establishing IM/IT processes and infrastructure throughout the MDA enterprise that allows IM/IT operations to be performed in an efficient, secure, and effective manner.

The BMD Information Management Systems project, executed by the Missile Defense Agency (MDA) Chief Information Office (CIO), includes the following Task areas: 1) Enterprise Architecture and Engineering, 2) Service IM/IT , 3) MDA Communications Infrastructure, 4) Enterprise Information Assurance 5) Enterprise Applications, 6) Virtual Data Centers, 7) Enterprise Plans and Policies, 8) Video Teleconferencing Centers, 9) ITO South Computing Infrastructure, 10) Computing Infrastructure, 11) Computing and Network Management Services and 12) Information Distribution Services.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Enterprise Architecture and Engineering	4,050	3,814	3,535	2,668
RDT&E Articles (Quantity)	0	0	0	0

Task Description: Enterprise Architecture and Engineering initiatives support the MDA and especially the Ballistic Missile Defense System (BMDS) Core projects by funding the design, development and implementation of an MDA Enterprise Architecture (EA) in accordance with the global information grid and DoD architecture framework guidelines. The MDA EA will improve the management of, and access to, data, information and knowledge throughout the MDA. Benefits of an MDA EA will be to facilitate the information sharing needs for interoperability among the MDA elements and systems. It will improve the Information Management and Information Technology (IM/IT) infrastructure that facilitates and supports design, development, modeling and simulations, testing of BMDS components and the management and sharing of the critical BMD-related data.

FY 2004 Accomplishments:

- Documented the MDA Baseline As-Is Architecture
- Developed the MDA Target Architecture
- Developed a Strategic Plan for the MDA Enterprise Architecture
- Completed the MDANet Enterprise deployment to 13 MDA locations around the country
- Developed an integrated MDA Enterprise Network with a single corporate identity
- Implemented reliable information storage that can support disaster recovery and maintain continuity of classified operations between 2 MDA regional sites

FY 2005 Planned Accomplishments:

- Develop a Sequencing Plan to transition to the MDA Enterprise Architecture
- Complete transition of MDA primary regional sites to the MDA Enterprise Architecture
- Develop a plan to implement JWICS/SIPRNET to BMDS operational sites as required
- Continue engineering support for classified computing across the MDA Enterprise

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
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FY 2006 Planned Program:

- Develop engineering plans for implementation of ATM to Version IPV6 protocol conversion
- Continue engineering support for classified network computing across the MDA Enterprise
- Develop engineering plans to increase server capacity to meet operational demands of the BMDS
- Design Metropolitan-Area-Networks (MANs) to provide network redundancy at primary regional sites
- Complete engineering planning for reliable information storage that can support disaster recovery and maintain continuity of operations between all sites

FY 2007 Planned Program:

- Provide engineering support for implementation of disaster recovery systems
- Continue engineering support for classified network computing across the MDA Enterprise
- Provide engineering support for enterprise server installations at primary regional sites
- Continue engineering support for integration of Metropolitan-Area-Networks (MANs) to provide network redundancy at primary regional sites

	FY 2004	FY 2005	FY 2006	FY 2007
Service IM/IT	6,116	7,657	4,751	4,872
RDT&E Articles (Quantity)	0	0	0	0

This initiative provides funds to three MDA Executing Agents for IM/IT costs incurred to support MDA BMDS-related efforts. The Executing Agents include 1) U.S. Army Space and Missile Defense Command (SMDC), 2) the U.S. Army Program Executive Office, Air, Space and Missile Defense (PEO ASMD), and 3) U.S. Air Force BMD Program Executive Office (USAF PEO). Funds provided to SMDC supports continuing operations and maintenance of their communications and computing infrastructure. This includes costs for operation and maintenance of a Corporate Information Management System (CIMS). CIMS is a system that has several modules that support a variety of business and administrative functions including: procurement, personnel, logistics, financial and contractual. This initiative supports the communications costs for LAN's/WAN's, and database management activities that support MDA IM/IT initiatives as well as network services including help desk, user support and software maintenance. SMDC also receives MDA funds to update and maintain the Program Resource Internet Database Environment (PRIDE), a database management tool used by MDA and the executing agents that supports mission operations. The PRIDE application provides MDA users access to planning, budgeting and administrative data. Funds provided to PEO ASMD support computing infrastructure costs for providing automated services for gathering, storing, sharing and retrieving technical and management information to provide oversight of multiple research contracts and business activities in support of MDA-related projects. Funds provided to the USAF PEO are used to fund support costs for logistics and database management efforts and communications costs for LANs/WAN's that are MDA related.

FY 2004 Accomplishments:

- Support recurring O&M and helpdesk services

FY 2005 Planned Accomplishments:

- Support recurring O&M and helpdesk services

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

FY 2006 Planned Program:

- Support recurring O&M and helpdesk services

FY 2007 Planned Program:

- Support recurring O&M and helpdesk services

	FY 2004	FY 2005	FY 2006	FY 2007
MDA Communications Infrastructure	6,101	9,396	12,018	12,787
RDT&E Articles (Quantity)	0	0	0	0

The MDA Enterprise Communications Infrastructure initiative consists of leased communications costs for classified and unclassified voice and data circuits including T1, fractional T1, OC3, and video teleconferencing capabilities and circuit access to the Joint Worldwide Intelligence Communications System (JWICS). Circuits and associated services are provided by the Defense Information Systems Agency (DISA) as well as the Defense Research and Engineering Network (DREN). Circuit access includes government and industry locations to enable and support information processing and information sharing of BMD-related data, globally, throughout the MDA Enterprise. This initiative funds expansion of bandwidth to the MDA's Video Teleconferencing Centers (VTCs) and Virtual Data Centers to meet increased demands of systems currently in place, and establish additional VTC sites to efficiently and effectively increase the information sharing capability to support the BMDS Initial Defensive Operations (IDO) schedule.

FY 2004 Accomplishments:

- Began phased installation of Service Delivery Points (SDPs) to provide Wide Area Network (WAN) connectivity to MDA regional locations in accordance with the Enterprise Architecture design
- Supported recurring maintenance agreements on MDA Enterprise network equipment
- Funded MDA Enterprise leased communications and services for existing circuits provided by DISA and DREN
- Upgraded obsolete networking equipment to improve system reliability and standardize equipment across the MDA Enterprise
- Established classified connectivity at the Joint National Integration Center (JNIC) in Colorado, at the Ground-based Midcourse Defense (GMD) in Huntsville, AL, at Space Tracking Surveillance System (SSTS) in Los Angeles, CA at Airborne Laser (ABL), Albuquerque, NM and in the National Capital Region (NCR)
- Delivered classified enterprise services to the NCR
- Established MDA Enterprise services at ABL Edwards AFB

FY 2005 Planned Accomplishments:

- Continue phased installation of Service Delivery Points (SDPs) to provide Wide Area Network (WAN) connectivity to MDA regional locations in accordance with the Enterprise Architecture design
- Support recurring maintenance agreements on MDA Enterprise network equipment
- Begin expansion of networking equipment to meet the demands of the BMDS operational environment
- Fund MDA Enterprise leased communications for existing circuits provided by DISA and DREN.

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FY 2006 Planned Program:

- Continue phased installation of Service Delivery Points (SDPs) to provide Wide Area Network (WAN) connectivity to MDA regional locations in accordance with the Enterprise Architecture design
- Support recurring maintenance agreements on MDA Enterprise network equipment.
- Fund MDA Enterprise leased communications for existing circuits provided by DISA and DREN.
- Continue expansion of networking equipment to meet the demands of the BMDS operational environment
- Migrate the MDA Enterprise Network layer from Asynchronous Transfer Mode (ATM) to Internet Protocol (IP) in support of the DoD Global Information Grid (GIG) architecture plan.

FY 2007 Planned Program:

- Continue phased installation of Service Delivery Points (SDPs) to provide Wide Area Network (WAN) connectivity to MDA regional locations in accordance with the Enterprise Architecture design
- Support recurring maintenance agreements on MDA Enterprise network equipment.
- Fund MDA Enterprise leased communications for existing circuits provided by DISA and DREN
- Continue expansion of networking equipment to meet the demands of the BMDS operational environment

	FY 2004	FY 2005	FY 2006	FY 2007
Enterprise Information Assurance	8,391	11,723	16,059	18,484
RDT&E Articles (Quantity)	0	0	0	0

The Enterprise Information Assurance (IA) Program was established to track IT security costs separately in accordance with the DoD FMR Volume 2B Chapter 18. The IA Program is a vital aspect of the Ballistic Missile Defense System (BMDS) and the MDA Enterprise. MDA IA activities will ensure that intended protection, detection and reaction processes are outlined and implemented to protect and defend information and information systems by providing for availability, integrity, authentication, confidentiality and non-repudiation for the mission, test and administrative environments across MDA. The IA Program provides system security engineering, integration of available Information Security (INFOSEC) products, development, and testing to ensure that command, control, communications, computing and intelligence (C4I) systems are protected against malicious or accidental attacks.

The MDA IA Program consists of the following IA special interest items: Protect Information - Public Key Infrastructure (Goal 1); Defend Systems and Networks (Goal 2); IA Situational Awareness/Command and Control (C2) (Goal 3); Transform and Enable IA Capabilities (Goal 4); and Create an IA Empowered Workforce (Goal 5).

FY 2004 Accomplishments:

- Completed an IA Network Assessment to verify robustness of network tools
- Developed initial capability to enhance training of Information Assurance Officer (IAO) and Information Assurance Manager (IAM) to recognize and respond to IA attacks
- Briefed Strategic Command (STRATCOM) on IA/CND for the BMDS
- In support of BMDS IDO, issued appropriate IATOs, SSAAs, and Memoranda of Understanding
- Completed CA efforts and issued an IATO for the BMDS IDO
- Implemented PKI/Common Access Card (CAC) at 7 MDA locations for a total of 2,900 users

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FY 2005 Planned Accomplishments:

- Continue IA engineering and planning guidance for all IT enclaves and acquisition programs
- Continue to support CA efforts and implementation and testing of IA controls to ensure that mission, test and administrative networks, systems and applications are implemented with appropriate IT security measures and procedures
- Prepare and coordinate Memoranda of Understanding for Computer Network Defense (CND) providers on mission, test and administrative systems as required
- Continue IA and CND management oversight and support for BMDS and MDA Enterprise systems
- Support IAVA compliance initiatives
- Develop an IA Master Plan
- Develop an IA Architecture
- Begin CND planning for the BMDS Block 6
- Continue support for recurring IA assessments on BMDS and Enterprise Architectures
- Continue engineering planning and documentation support for IA architecture modifications
- Provide recurring IA training to the IA workforce
- Support 24/7 Enterprise Network Operations Security Center (ENOSC) operations.

FY 2006 Planned Program:

- Provide IA engineering and planning guidance for all IT enclaves and acquisition programs
- Support IAVA compliance initiatives
- Continue IA and CND management oversight and support for BMDS and MDA Enterprise systems
- Provide support to integration of enterprise applications using CAC and public key enabled (PKE) applications and digital signature capability
- Continue engineering planning and documentation support for IA architecture modifications.
- Provide recurring IA training to the IA workforce
- Support 24/7 Enterprise Network Operations Security Center (ENOSC) operations

FY 2007 Planned Program:

- Provide IA engineering and planning guidance for all IT enclaves and acquisition programs
- Continue IA and CND management oversight and support for BMDS and MDA Enterprise systems
- Support IAVA compliance initiatives
- Continue implementation of enterprise applications using CAC and public key enabled (PKE) applications and digital signature capability
- Provide recurring IA training to the IA workforce
- Continue engineering planning and documentation support for IA architecture modifications.
- Support 24/7 Enterprise Network Operations Security Center (ENOSC) operations.

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	FY 2004	FY 2005	FY 2006	FY 2007
Enterprise Applications	2,385	9,352	15,238	19,260
RDT&E Articles (Quantity)	0	0	0	0

In accordance with the Clinger Cohen Act, DoD Directive 5000.15 DoD Records Management Program and OMB Circular A130, the Enterprise Applications initiative provides for the implementation of enterprise information applications which are used to collect, analyze, display and share data. Examples include PKE enterprise applications such as MDA Enterprise Portal, E-Management System (EMS), collaborative tools, web-enabled scheduling, personnel tracking system, standard procurement system, and on-line BMDS University.

FY 2004 Accomplishments:

- Fund recurring enterprise application license fees
- Began deployment of the MDA Classified and Unclassified Enterprise Portals for authorized information sharing and collaboration
- Began implementation of a web-enabled System Development Scheduling capability
- Implemented initial phase of the on-line MDA Ballistic Missile Defense System University (BMDSU)
- Completed an E-Management System (EMS) Pilot project for electronics records management and published a Records Management Guideline
- Designed and implemented an Initial Defensive Operations (IDO) Task Force Knowledge Site on the MDA Classified Portal
- Completed identification of software applications to OSD Software Asset Management (SAM)

FY 2005 Planned Accomplishments:

- Fund recurring enterprise application license fees
- Continue EMS project implementation and training program
- Continue expansion and spiral development of the MDA unclassified and classified web-based Enterprise Portals.
- Support implementation of DoD standardized financial management applications
- Implement an MDA Personnel Tracking System
- Implement an Agency action tracking system
- Continue implementation of the BMD System Asset Management capability
- Support implementation of a Standard Procurement System

FY 2006 Planned Program:

- Fund recurring enterprise application license fees
- Begin implementation of PKE-enabled Enterprise applications
- Expand MDA Enterprise Portals to non-MDA resident users
- Begin phased implementation of information sharing and collaboration applications
- Integrate on-line BMDS University training program to MDA Enterprise Portals

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FY 2007 Planned Program:

- Fund recurring enterprise application license fees
- Continue implementation of PKE information sharing and collaboration applications
- Continue phased implementation of information sharing and collaboration applications
- Continue integration of BMDS University training program to MDA Enterprise Portals

	FY 2004	FY 2005	FY 2006	FY 2007
Virtual Data Centers	2,903	3,534	3,968	3,643
RDT&E Articles (Quantity)	0	0	0	0

In accordance with OMB 9602 Consolidation of Agency Data Centers, the Virtual Data Center (VDC) task includes the operations, maintenance and support costs to provide a classified portal access capability to Ballistic Missile Defense-related test, experiment, modeling and simulation data that is processed, cataloged and made available to the MDA community by the Data Centers. The VDC initiative consolidates information sharing across the MDA into an integrated virtual capability. The VDCs include the Missile Defense Data Center (MDDC), a component of the US Army Space and Missile Defense Command (USASMDC), the Advanced Missile Signature Center (AMSC), a component of the US Air Force, Naval Warfare Assessment Station, and the Joint National Integration Center Ballistic Missile Defense System Integration Data Center (BMDS IDC). The BMD Information Resource Center (BIRC), a resource and research service library, will begin conversion to a virtual library in FY04.

FY 2004 Accomplishments:

- Support recurring VDC Program operations and maintenance.
- Began conversion of the VDC into the MDA classified knowledge repository (MDA Classified Portal).
- Began phased implementation of Disaster Recovery Capability at the BMDS IDC.
- Began the conversion of the BMD Information Resource Center (BIRC) to Virtual Data Center capability

FY 2005 Planned Accomplishments:

- Support recurring VDC Program operations and maintenance
- Complete planning of disaster recovery capability
- Complete the conversion of the BIRC to a Virtual Data Center capability

FY 2006 Planned Program:

- Support recurring VDC Program operations and maintenance
- Begin integration of VDCs to the MDA Enterprise Portals
- Begin expansion of server and on-line storage capacity to support increased mission for IDO
- Begin phased implementation of Disaster Recovery capability

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FY 2007 Planned Program:

- Support recurring VDC Program operations and maintenance
- Being integration of VDCs to the MDA Enterprise Portals
- Continue expansion of server and on-line storage capacity to support increased mission for IDO
- Continue implementation of Disaster Recovery capability

	FY 2004	FY 2005	FY 2006	FY 2007
Enterprise Plans & Policies	4,478	7,218	5,750	6,994
RDT&E Articles (Quantity)	0	0	0	0

This initiative funds efforts that support development and implementation of Agency-wide IM/IT policies, guidelines and management processes to ensure efficient and effective oversight of information resources in accordance with various Federal and statutory policies including the Clinger-Cohen Act, the Federal Information Security Management Act (FISMA), the Government Paperwork Elimination Act (GPEA), and the Office of Management and Budget (OMB) IT budget reporting in accordance with the DoD Financial Management Regulations. Specific efforts include implementation of the CIO vision, mission and goals, development of the agency Strategic IM/IT Plan, IM/IT budget formulation and execution in accordance with the Planning, Programming, Budgeting and Execution System (PPBES) process, development of IM/IT policies and procedures, Capital Planning and Investment Control (CPIC) process development and implementation, business case development, review and approval, CIO participation on IT-related boards and working groups, and Section 508 and Enterprise Software Initiative (ESI) compliance reporting within and outside the Agency.

FY 2004 Accomplishments:

- Submitted Agency Special Budget Exhibits 53 IT Resources and Exhibit 300 Selected Capital Investment Report (SCIR)
- Submitted the Federal Information Security Management Act (FISMA) Report for FY04
- Published CIO Guideline on the CPIC process for IT Investments
- Managed FY04 Planning, Programming, Budgeting and Execution System (PPBES)
- Drafted, coordinated and published policies, guidelines and processes in accordance with applicable legislation, OMB, OSD and DoD guidance.
- Provide quarterly updates to the MDA IT Registry of IT systems
- Provide updates to the President's Management Agency (PMA) E-Government initiative
- Prepared status reports and report metrics/progress of the MDA IM/IT Enterprise to OMB, OSD, and DoD.

FY 2005 Planned Accomplishments:

- Prepare and submit Agency Special Budget Exhibit 53, IT Resources and Exhibit 300, Selected Capital Investment Report (SCIR)
- Submit the Federal Information Security Management Act (FISMA) Report for FY04
- Manage FY05 Planning, Programming, Budgeting and Execution System (PPBES)
- Draft, coordinate and publish policies, guidelines and processes in accordance with applicable legislation, OMB, OSD and DoD guidance.
- Provide quarterly updates to the MDA IT Registry of IT systems

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- Provide updates to the President's Management Agency (PMA) E-Government initiative
- Prepared status reports and report metrics/progress of the MDA IM/IT Enterprise to OMB, OSD, and DoD.

FY 2006 Planned Program:

- Prepare and submit Agency Special Budget Exhibit 53, IT Resources and Exhibit 300, Selected Capital Investment Report (SCIR) to support the FY 2008-2013 Program and Budget Review
- Submit the Federal Information Security Management Act (FISMA) Report for FY05
- Manage FY06 Planning, Programming, Budgeting and Execution System (PPBES)
- Draft, coordinate and publish policies, guidelines and processes in accordance with applicable legislation, OMB, OSD and DoD guidance.
- Provide quarterly updates to the MDA IT Registry of IT systems
- Provide updates to the President's Management Agency (PMA) E-Government initiative
- Prepared status reports and report metrics/progress of the MDA IM/IT Enterprise to OMB, OSD, and DoD.

FY 2007 Planned Program:

- Prepare and submit Agency Special Budget Exhibit 53, IT Resources and Exhibit 300, Selected Capital Investment Report (SCIR)
- Submit the Federal Information Security Management Act (FISMA) Report for FY06
- Manage FY07 Planning, Programming, Budgeting and Execution System (PPBES)
- Draft, coordinate and publish policies, guidelines and processes in accordance with applicable legislation, OMB, OSD and DoD guidance.
- Provide quarterly updates to the MDA IT Registry of IT systems
- Provide updates to the President's Management Agency (PMA) E-Government initiative
- Prepared status reports and report metrics/progress of the MDA IM/IT Enterprise to OMB, OSD, and DoD.

	FY 2004	FY 2005	FY 2006	FY 2007
MDA Video Teleconferencing	3,011	4,795	5,250	5,106
RDT&E Articles (Quantity)	0	0	0	0

The MDA Video Teleconferencing (VTC) initiative consists of costs required for the management, engineering, systems integration, operation, maintenance and technical support services for the teleconferencing network within the Missile Defense Agency's National Capital Region and the Joint National Integration Center (JNIC) community of interest (COI). The COI consists of a combination of .com, .mil, .gov, and .edu locations at various geographic locations throughout the contiguous United States and the Pacific. Defense Information System Agency, through its Defense Information Systems Network (DISN) Video Services-Global-Global (DVS-G) contracts, is responsible for video teleconferencing throughout the Department of Defense. The MDA COI is but one community in the greater DVS-G. Core MDA VTC COI sites include the NCR, JNIC, Airborne Laser (ABL) at Kirtland Air Force Base (AFB), Space Tracking and Surveillance Systems (STSS) at Los Angeles AFB, and numerous offices in Huntsville, AL including Terminal High Altitude Area Defense (THAAD), Targets and Countermeasures, and Ground Missile Defense.

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FY 2004 Accomplishments:

- Initiated VTC Configuration Management throughout the MDA Enterprise
- Began upgrade and standardization of VTC equipment and software
- Collaborated with VTC sites across the Enterprise to establish VTC best business practices
- Expanded the VTC Integrated Project Team (IPT) into an Enterprise-wide Tiger Team
- Awarded a VTC Operations and Maintenance contract to provide services for arrangement, engineering, systems integration, and maintenance
- Published VTC room standards, baselined rooms and system software and instituted a self-paced distance learning program

FY 2005 Planned Accomplishments:

- Support recurring O&M support to VTC Centers
- Implement Video-Over-Internet Protocol (VOIP) capability for Executive Offices
- Implement MDA VOIP Operations Center

FY 2006 Planned Program:

- Continue implementation of VOIP for all MDA users
- Provide recurring O&M support to VTC Centers
- Integrate VTC capability to new MDA facilities
- Continue standardization of VTC equipment and software

FY 2007 Planned Program:

- Continue implementation of VOIP for all MDA users
- Continue to provide recurring O&M support to VTC Centers
- Continue to integrate VTC capability to new MDA facilities
- Continue standardization of VTC equipment and software

	FY 2004	FY 2005	FY 2006	FY 2007
ITO South Computing Infrastructure	100	175	18,000	8,752
RDT&E Articles (Quantity)	0	0	0	0

This task provides funding for the engineering, design, procurement, installation, operations and maintenance costs for the information technology (IT) infrastructure, and the communications and computing infrastructure for the Von Braun Complex (VBC) being built in Huntsville, Alabama. The VBC will consolidate personnel at MDA-sponsored organizations in the Huntsville area to include: Information Technology Office - South, Ground-based Midcourse (GM), Missile Defense Data Center (MDDC), Applied Data Analysis Center (ADAC), the Targets and Countermeasures project office, and the Hercules project office. The funds in the initiative will provide for the acquisition and continuing operations, maintenance and support costs to support the information technology/information management (IT/IM) infrastructure including the local area network (LAN) electronics, classified and unclassified desktop computers, servers, printers, and an array of

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applicable software and the associated help desk and LAN operations services. The communications and computing infrastructure costs consist of long haul circuits, local circuits, telephone systems and equipment, video teleconferencing equipment, cell phones and associated support services.

FY 2006 Planned Program:

- Complete planning and design of the IM/IT infrastructure of the new MDA facility located at the Von Braun Complex in Huntsville, Alabama
- Begin implementation of the IM/IT infrastructure at the MDA facility at the Von Braun Complex

FY 2007 Planned Program:

- Support recurring IM/IT infrastructure operations and maintenance

	FY 2004	FY 2005	FY 2006	FY 2007
Computing Infrastructure	0	0	12,530	53,091
RDT&E Articles (Quantity)	0	0	0	0

The Computing Infrastructure initiative provides funds to support the operations and sustainment of the Enterprise systems supporting the National Capital Region (NCR). This initiative provides funding for infrastructure costs such as the cable plant, network routing and switching gear, and storage devices as well as desktop computers and servers and the associated user, server and information assurance applications. This initiative also supports the planning, analysis and acquisition of IT resources and office automation equipment. In FY 2006, $5.9M has been budgeted to support the planning for the MDA Campus consolidation. In FY 2007, $42M is identified for the installation of the communications and computing infrastructure build out, purchase of IM/IT hardware and software and the parallel operations that will be required during the transition to a consolidated campus environment in the National Capital Region (NCR).

FY 2006 Planned Program:

- Fund recurring software licenses for the NCR
- Fund recurring Maintenance Agreements for the NCR
- Fund recurring support for the NCR classified and unclassified LAN
- Begin IT infrastructure design and planning for MDA Campus consolidation

FY 2007 Planned Program:

- Fund recurring software licenses for the NCR
- Fund recurring Maintenance Agreements for the NCR
- Fund recurring support for the NCR classified and unclassified LAN
- Begin cable plant installation and build-out of IT infrastructure of MDA Campus
- Fund surge support during the MDA Campus build-out
- Implement parallel communications and computing capabilities to ensure continuity of operations during the Campus build-out

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	FY 2004	FY 2005	FY 2006	FY 2007
Computing & Network Management Services	0	0	20,365	37,608
RDT&E Articles (Quantity)	0	0	0	0

The Computing and Network Management Services initiative consists of support services required to operate and maintain the National Capital Region classified and unclassified local area network. This includes help desk services and trouble ticket identification and resolution, hardware, software and peripherals installation services, cabling, desktop PCs, printers, and other peripherals to accommodate agency expansion. Costs include IT equipment such as projectors, video teleconferencing equipment and other IT equipment needed to equip conference rooms with the capability to conduct meetings and accommodate information sharing across the MDA enterprise at many geographical locations.

FY 2006 Planned Program:

- Support recurring O&M and helpdesk services
- Support IT planning efforts during the MDA Campus build-out

FY 2007 Planned Program:

- Support recurring O&M and helpdesk services
- Support the increase in O&M and helpdesk services due to parallel operations during the MDA Campus build-out

	FY 2004	FY 2005	FY 2006	FY 2007
Information Distribution Services	0	3,789	7,793	11,604
RDT&E Articles (Quantity)	0	0	0	0

Information Distribution Services includes costs to develop, manage content, and operate and maintain the MDA Portal. The MDA Portals are a vital asset used to share information and knowledge throughout the Missile Defense community. Also included are costs to operate and maintain the Visual Information Production Center, a state-of-the-art, high capacity graphic and video production environment which provides services to senior leadership and agency employees.

FY 2005 Planned Accomplishments:

- Support recurring O&M and helpdesk services

FY 2006 Planned Program:

- Continue Portal content management and collaboration efforts
- Continue to fund the Video Information Production Center (VIPC) to provide graphic and video production capabilities to Agency senior leadership and MDA-wide personnel

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FY 2007 Planned Program:

- Continue Portal content management and collaboration efforts
- Continue to fund the VIPC to provide graphic and video production capabilities to Agency senior leaderships and MDA-wide personnel

C. Other Program Funding Summary

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	226,765	231,145	136,241	184,877	197,229	205,191	212,435	218,763	1,612,646
PE 0603879C Advanced Concepts, Evaluations and Systems	132,701	159,878	0	0	0	0	0	0	292,579
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	860,794	928,388	1,143,610	1,034,676	879,674	617,319	731,282	485,512	6,681,255
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3,731,708	4,521,019	3,266,196	3,945,991	3,650,848	3,315,513	3,183,622	2,545,882	28,160,779
PE 0603883C Ballistic Missile Defense Boost Defense Segment	475,911	476,179	483,863	648,728	620,793	690,807	811,430	1,183,182	5,390,893
PE 0603884C Ballistic Missile Defense Sensors	417,814	577,297	529,829	995,711	1,214,008	1,186,134	1,069,208	1,018,614	7,008,615
PE 0603886C Ballistic Missile Defense System Interceptors	114,669	279,815	229,658	444,900	677,243	1,137,337	1,468,827	1,717,507	6,069,956
PE 0603888C Ballistic Missile Defense Test and Targets	616,773	720,818	622,357	684,170	608,282	643,119	661,362	670,092	5,226,973
PE 0603889C Ballistic Missile Defense Products	309,949	383,830	455,152	509,982	509,161	516,599	516,017	515,729	3,716,419
PE 0603890C Ballistic Missile Defense System Core	449,747	399,829	447,006	538,442	532,412	530,934	520,679	531,832	3,950,881
PE 0603891C Special Programs - MDA	0	0	349,522	482,903	826,173	1,097,252	1,015,198	1,244,072	5,015,120
PE 0605502C Small Business Innovative Research - MDA	146,030	0	0	0	0	0	0	0	146,030
PE 0901585C Pentagon Reservation	16,251	13,761	17,386	15,586	6,058	6,376	4,490	4,725	84,633
PE 0901598C Management Headquarters - MDA	92,100	113,777	99,327	95,443	98,984	98,728	81,492	81,760	761,611
Air Force – Other Procurement	0	0	2,400	1,453	11,279	386	17,710	25,709	58,937
Air Force – Operations and Maintenance	0	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
Air Force – Military Personnel	0	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
Army – Operations and Maintenance	37,600	49,597	66,974	68,246	69,809	71,472	73,325	75,230	512,253
Army National Guard – Operations and Maintenance	0	0	155	151	150	154	164	167	941
Army National Guard – Military Personnel	21,000	21,000	17,648	24,432	24,952	25,591	25,591	25,591	185,805
Navy – Operations and Maintenance	0	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PAC-3/MEADS – RDT&E	433,728	344,978	304,973	336,959	465,395	521,791	522,418	502,961	3,433,203
PAC-3/MEADS – Missile Procurement	841,964	574,972	581,924	578,579	660,584	616,020	509,032	738,679	5,101,754

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D. Acquisition Strategy

MDA employs a federated acquisition strategy for the procurement and sustainment of the MDA Enterprise. This strategy utilizes a FEDSIM Millennia contractor for Engineering and Architectural Planning support. Approved engineering designs and plans are then implemented, sustained, and operated by local contractors in each regional area (National Capital Region, Huntsville Alabama, Colorado Springs, CO, Albuquerque, NM, and Los Angeles, CA).

In FY 2006 a contract will be awarded for planning and engineering of the MDA Campus computing infrastructure in the National Capital Region (NCR). In FY 2007, another contract will be awarded in the NCR to lay in the communications and computing infrastructure of the MDA Campus. A contract will be awarded for the operations and maintenance of the computing infrastructure at the MDA Campus in FY 2007.

In late FY 2006, a contract will be awarded for the build out of the communications and computing infrastructure of the Von Braun Complex in Huntsville, Alabama. Another contract will be awarded in FY 2007 to operate and maintain the IM/IT infrastructure at the Complex.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
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I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Product Development										

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Enterprise Architecture and Engineering										
Ent Architecture & Engineering	MIPR	FEDSIM/SRA/ VA	4,050	3,814	2Q	3,535	2Q	2,668	2Q	14,067
Service IM/IT										
Service IM/IT	C/CPAF	SMDC/SAIC/ AL	4,480	6,116	1/2Q	4,480	1/2Q	4,480	1/2Q	19,556
Service IM/IT	C/CPAF	PEO ASMD/SAIC/ AL	1,345	1,345	1/2Q	0		0		2,690
Service IM/IT	C/CPFF	USAF/SAIC/ CA	291	196	1/2Q	271	1/2Q	392	1/2Q	1,150
MDA Communications Infrastructure										
Leased Comms	MIPR	DISA/ IL	3,558	2,822	1Q	3,951	1Q	4,764	1Q	15,095
Leased Comms	MIPR	Army Rsch Lab/ MD	600	790	1Q	1,106	2Q	1,383	1Q	3,879
WAN Tansport	C/CPAF	Northrop Grumman/ CO	1,104	2,344	2Q	4,075	2Q	3,727	2Q	11,250

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Hub Services	MIPR	AFRL Hanscom/ MA	10	10	1Q	10	1Q	10	1Q	40
Hub Services	MIPR	AFRL Redstone/ AL	23	23	1Q	23	1Q	23	1Q	92
Leased Comms	MIPR	USAF Wake Island/ CA	29	0	N/A	0	N/A	0	N/A	29
Comms Support	MIPR	GMD/ AL	32	0	N/A	0	N/A	0	N/A	32
Leased Comms	MIPR	DTSW/ VA	176	826	1Q	353	1Q	380	1Q	1,735
WAN Sustainment Services	C/CPAF	Northrop/ CA	840	2,581	2Q	2,500	2Q	2,500	2Q	8,421
Enterprise Information Assurance										
C&A Support	MIPR	FEDSIM/ VA	1,149	1,338	2Q	1,965	2Q	2,128	2Q	6,580
C&A Support	MIPR	GovWorks/ VA	696	899	3Q	935	1/3Q	972	1/3Q	3,502
NCR Info Assurance	C/CPAF	ZEN Tech/ VA	0	5,069	1/3Q	4,069	1/3Q	4,482	1/3Q	13,620
Enterprise Network Op Security Center	C/CPAF	Northrop Grumman/ CO	4,010	3,772	2Q	7,000	2Q	5,500	2Q	20,282
Disaster Recovery	C/CPAF	Northrop Grumman/ CO	0	0	N/A	1,218	2Q	3,902	2Q	5,120
PKI Support	C/CPAF	FEDSIM/ VA	1,456	345	2Q	572	2Q	1,200	2Q	3,573
Info Assurance Training	C/CPAF	FEDSIM/ VA	300	300	2Q	300	2Q	300	2Q	1,200

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
PKI Support	C/CPAF	ZEN/ VA	596	0	N/A	0	N/A	0	N/A	596
Enterprise Applications										
Enterprise Application	C/CPAF	FEDSIM/ VA	897	4,967	2Q	8,544	2Q	13,696	1/2Q	28,104
PRIDE Maintenance and Support	MIPR	SMDC/ AL	895	999	1/2Q	999	1Q	999	1Q	3,892
Database Support	MIPR	GSA/ VA	0	100	2Q	0	N/A	0	N/A	100
BMDS University support	MIPR	NTIS/ VA	0	433	1Q	0	N/A	0	N/A	433
App Integration Support	C/CPAF	Northrop/ CO	568	2,853	2Q	5,695	2Q	4,565	2Q	13,681
Document Scanning	MIPR	DTIC/ VA	25	0	N/A	0	N/A	0	N/A	25
Virtual Data Centers										
VDC Support	C/CPAF	AMSC/ AL	290	300	1/2Q	307	2Q	290	2Q	1,187
VDC Support	C/CPAF	MDDC/ AL	348	348	1/2Q	369	1/2Q	348	1/2Q	1,413
VDC Support	MIPR	NSWC/ CA	131	131	1/2Q	131	1/2Q	131	1/2Q	524
VDC Support	C/CPAF	Northrop Grumman/ CO	1,956	1,953	2Q	1,953	2Q	1,912	2Q	7,774
BMDS Library Support	C/CPFF	DRC/ VA	178	0	2Q	0	N/A	0	N/A	178
Publications	Various	Various/ VA	0	802	1/2Q	1,208	1/2Q	962	1/2Q	2,972
Enterprise Plans & Policies										

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
SETA Support	C/CPFF	GovWorks (Milestone Group)/ VA	2,850	6,212	2/3Q	4,892	2/3Q	5,088	2/3Q	19,042
CIO Support	Various	Various/ CO	262	556	1/2Q	858	1/2Q	1,906	1/2Q	3,582
CIO Support	C/CPFF	Decisive Analytics/ VA	0	300	2Q	0	N/A	0	N/A	300
SETA Support	SS/MIPR	NAWC Pt Mugu/ CA	1,366	0	N/A	0	N/A	0	N/A	1,366
CIO Support	MIPR	STRATCOM	0	150	2Q	0	N/A	0	N/A	150
MDA Video Teleconferencing										
VTC Support and Maintenance	SS/CPAF	SGICOM/ VA	1,411	3,786	1/3Q	3,708	1/3Q	3,819	1/3Q	12,724
VTC Enterprise Engineering	C/CPAF	FEDSIM/ VA	1,600	831	2Q	1,542	2Q	1,287		5,260
Integration Support	C/CPAF	Northrop/ CO	0	178	2Q	0	N/A	0	N/A	178
ITO South Computing Infrastructure										
Von Braun Complex IT Support		TBD	0	0	N/A	18,000		0	N/A	18,000
Von Braun IT Support and Sustainment		TBD	0	0	N/A	0	N/A	8,752		8,752
ITO South IT Equipment/Lease		GSA	100	125	2Q	0	N/A	0	N/A	225
ITO West IT Support & Equipment		GSA	0	50	2Q	0	N/A	0	N/A	50
Computing Infrastructure										
Cabling	C/TM	Crawford/ MD	0	0	N/A	2,652	1/2Q	2,800	1/2Q	5,452
MDA Campus IT Infrastructure	C/CPAF	TBD	0	0	N/A	3,900		42,091		45,991

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
IT HW/SW Equipment	MIPR	GSA	0	0	N/A	5,978	1/2Q	8,200		14,178
Computing & Network Management Services										
Computing & Network Services	C/CPFF	ZEN Tech/ MD	0	0	N/A	14,304	2/3Q	17,426	2/3Q	31,730
MDA Campus Parallel O&M	Various	TBD	0	0	N/A	0	N/A	13,881	1Q	13,881
IM/IT Support	MIPR	GovWorks/ VA	0	0	N/A	4,800	2/3Q	4,920	2/3Q	9,720
Cabling	SS/CPFF	Crawford/ MD	0	0	N/A	960	1Q	1,080	1Q	2,040
MSS Database Support	CPFF	ZEN Tech/ MD	0	0	N/A	301	2/3Q	301	2/3Q	602
Information Distribution Services										
Portal and VIPC support	SS/CPFF	CSC/ VA	0	3,789	N/A	7,793	2/3Q	11,604	1/2Q	23,186
Subtotal Support Costs			37,622	61,453		125,257		184,869		409,201

Remarks

A contract will be awarded for the Planning and Engineering for the MDA Campus in FY 2006.

A contract will be awarded for the MDA Campus build-out of the communications and computing infrastructure in FY 2007. Another contract will be awarded in FY 2006 for the build out of the IM/IT infrastructure of the Von Braun Complex in Huntsville, Alabama.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										

Remarks

IV. Management Services Cost ($ in Thousands)

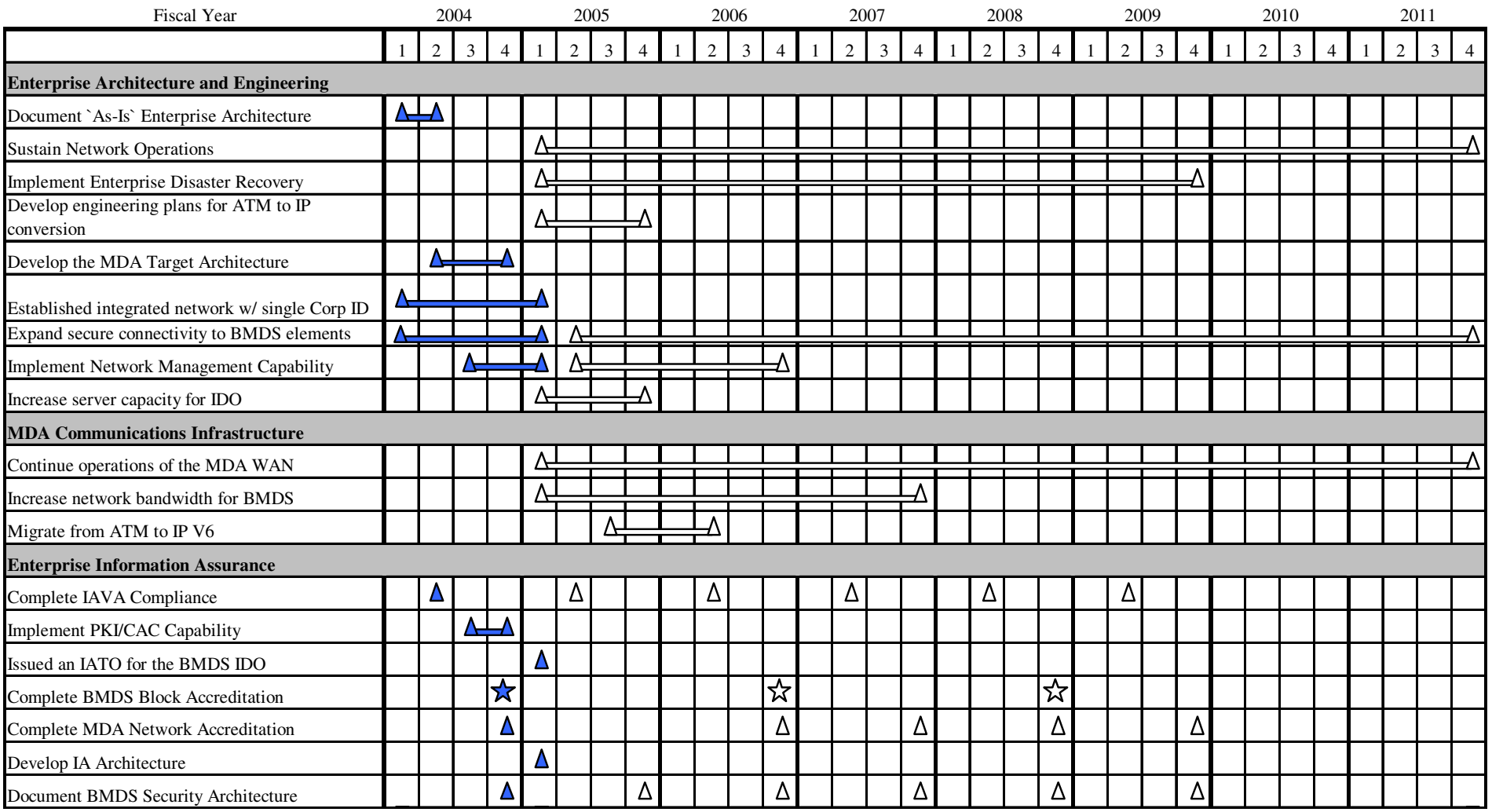
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Management Services										

Remarks

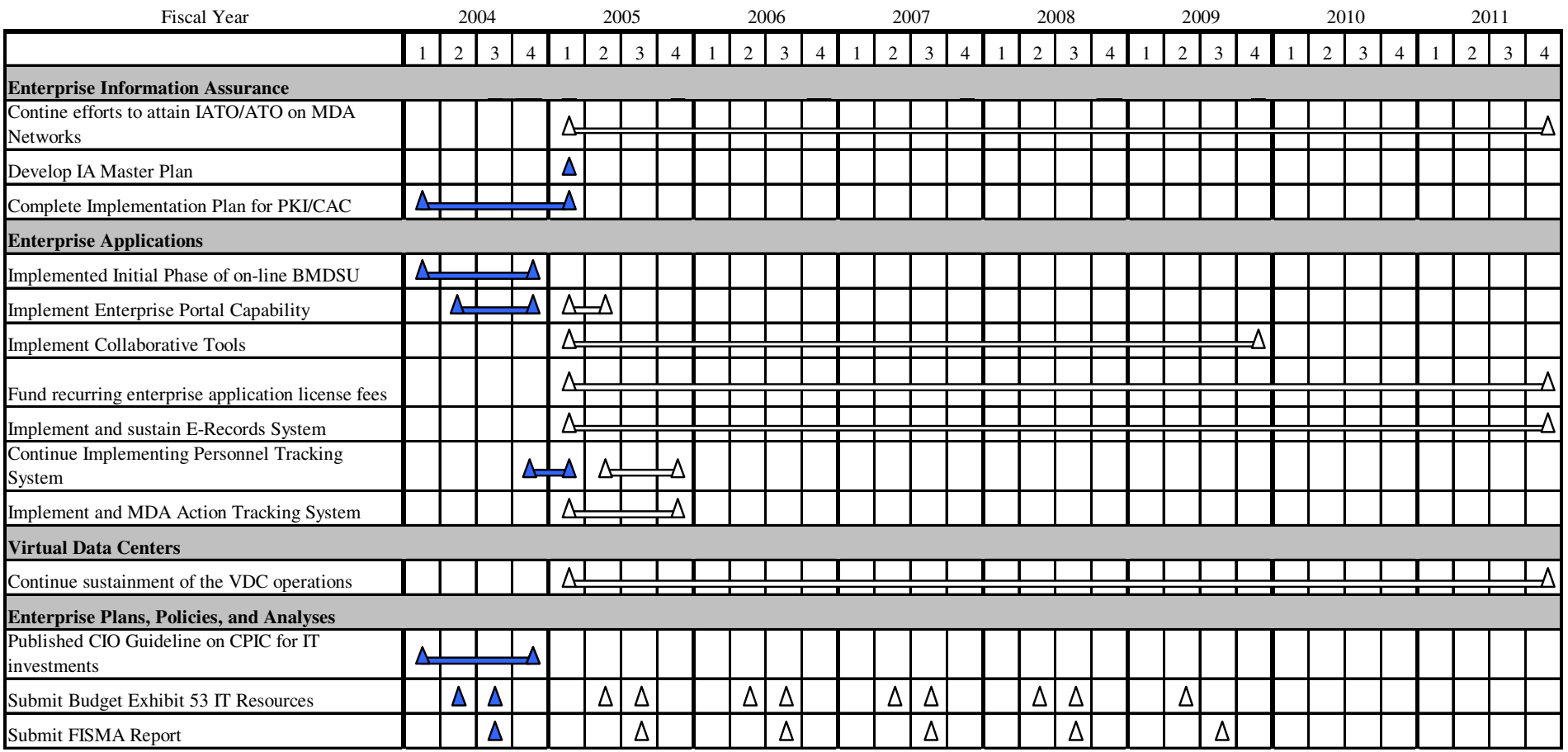
Project Total Cost			37,622	61,453		125,257		184,869		409,201

Remarks

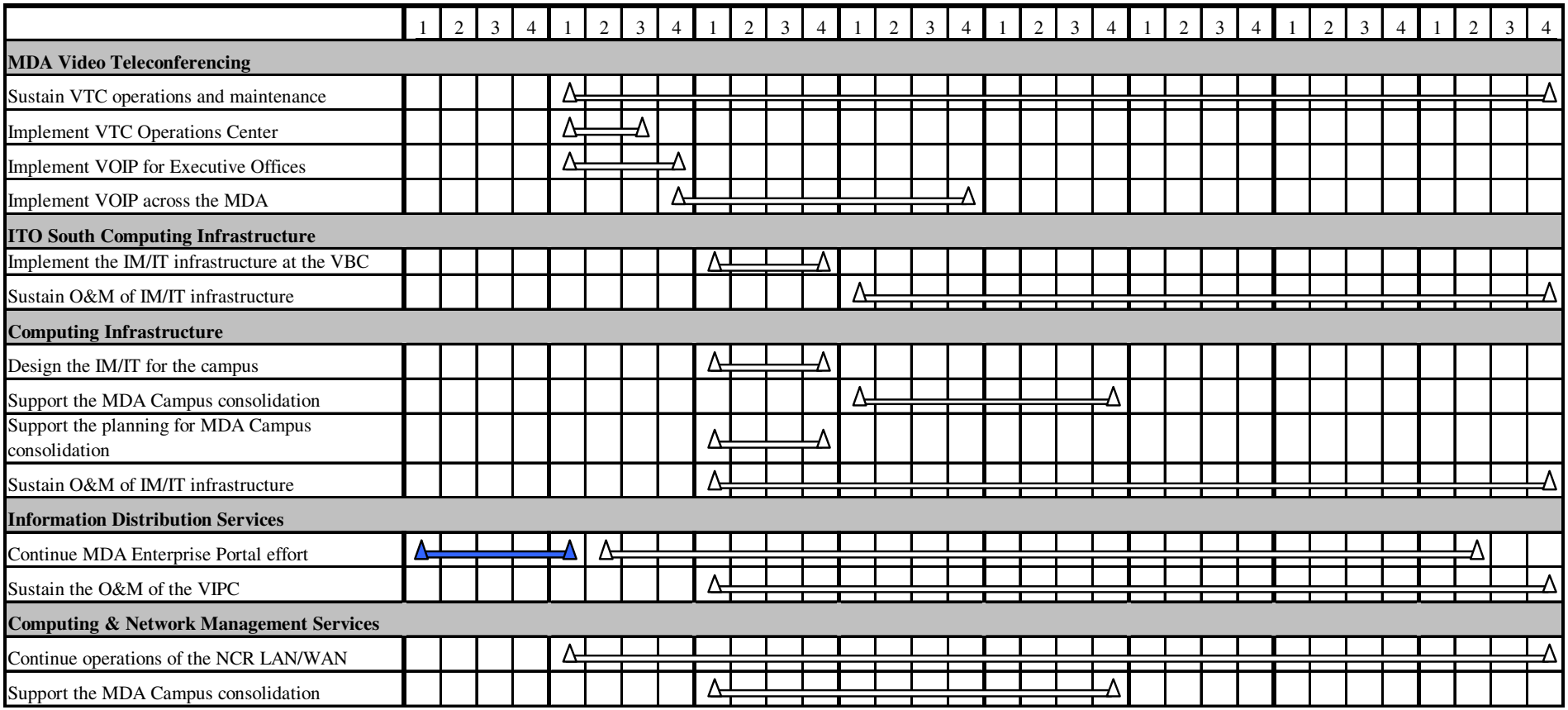
Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Enterprise Architecture and Engineering								
Document `As-Is` Enterprise Architecture	1Q-2Q							
Sustain Network Operations		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Initiate Disaster Recovery between NCR and JNIC	1Q-4Q							
Develop Network Op Security Ctr (NOSC)	3Q-4Q	1Q-4Q	1Q-4Q					
Implement Enterprise Disaster Recovery		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Complete planning of disaster recovery capability	1Q-4Q	1Q-2Q						
Develop engineering plans for ATM to IP conversion		1Q-4Q						
Develop the MDA Target Architecture	2Q-4Q							
Established integrated network w/ single Corp ID	1Q-4Q	1Q						
Expand secure connectivity to BMDS elements	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Implement Network Management Capability	3Q-4Q	1Q-4Q	1Q-4Q					
Increase server capacity for IDO		1Q-4Q						
MDA Communications Infrastructure								
Fund DISA/DREN for comms and services	1Q	1Q	1Q	1Q	1Q	1Q		
Continue operations of the MDA WAN		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Continue migration of circuits to DISA	4Q		1Q,2Q					
Execute Service Level Agreements for hub services	1Q	1Q	1Q	1Q	1Q	1Q		
Support recurring maintenance agreements		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q
Increase network bandwidth for BMDS		1Q-4Q	1Q-4Q	1Q-4Q				
Migrate from ATM to IP V6		3Q-4Q	1Q-2Q					
Enterprise Information Assurance								
Complete IAVA Compliance	2Q	2Q	2Q	2Q	2Q	2Q		
Implement PKI/CAC Capability	3Q-4Q							
Issued an IATO for the BMDS IDO		1Q						
Complete BMDS Block Accreditation	4Q		4Q		4Q			
Complete MDA Network Accreditation	4Q		4Q	4Q	4Q	4Q		
Develop IA Architecture		1Q						
Document BMDS Security Architecture	4Q	4Q	4Q	4Q	4Q	4Q		
Continue efforts to attain IATO/ATO on MDA Networks		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Develop IA Master Plan		1Q						

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Complete Implementation Plan for PKI/CAC	1Q-4Q	1Q						
Enterprise Applications								
Implemented Initial Phase of on-line BMDSU	1Q-4Q							
Implement Enterprise Portal Capability	2Q-4Q	1Q-2Q						
Implement the BMDS University applications	1Q-4Q	1Q						
Implement a Personnel Tracking System	1Q-4Q	1Q						
Implement an E-Management System at GMD	1Q-4Q	1Q						
Implement a System Development Schedule	1Q-4Q	1Q						
Implement Collaborative Tools		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Fund recurring enterprise application license fees		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Implement and sustain E-Records System		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Continue Implementing Personnel Tracking System	4Q	1Q-4Q						
Implement and MDA Action Tracking System		1Q-4Q						
Virtual Data Centers								
Convert the BIRC to a Virtual Library	3Q-4Q	1Q-2Q						
Complete planning of disaster recovery capability		1Q-4Q						
Continue sustainment of the VDC operations		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Enterprise Plans, Policies, and Analyses								
Update MD Enterprise IM/IT Program Plan	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
Update Info Security Approach w/evolving DoD Stnds	1Q-4Q	1Q-4Q						
Complete DOJ Section 58 Survey	1Q	1Q	1Q	1Q	1Q	1Q		
Published CIO Guideline on CPIC for IT investments	1Q-4Q,4Q							
Manage the SW Asset Management Program	1Q					4Q		
Complete Qtrly update of MDA IT Registry	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q		
Submit Budget Exhibit 53 IT Resources	2Q,3Q	2Q,3Q	2Q,3Q	2Q,3Q	2Q,3Q	2Q		
Submit FISMA Report	3Q	3Q	3Q	3Q	3Q	3Q		
Submit GPEA Report	3Q	3Q	3Q	3Q	3Q	3Q		
Coordinate FISMA review, inspection, audit	2Q	2Q	2Q	2Q	2Q	2Q		
MDA Video Teleconferencing								
Sustain VTC operations and maintenance		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Implement VTC Operations Center		1Q-3Q						

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Implemented Configuration Mgmt	1Q-3Q,3Q							
Implement VOIP for Executive Offices		1Q-4Q						
Implement VOIP across the MDA		4Q	1Q-4Q	1Q-4Q				
ITO South Computing Infrastructure								
Implement the IM/IT infrastructure at the VBC			1Q-4Q					
Sustain O&M of IM/IT infrastructure				1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Computing Infrastructure								
Design the IM/IT for the campus			1Q-4Q					
Maintain software licenses for the NCR		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Support the MDA Campus consolidation				1Q-4Q	1Q-4Q			
Support the planning for MDA Campus consolidation			1Q-4Q					
Sustain O&M of IM/IT infrastructure			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Information Distribution Services								
Continue MDA Enterprise Portal effort	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-2Q
Sustain the O&M of the VIPC			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Computing & Network Management Services								
Continue operations of the NCR LAN/WAN		1Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Support the MDA Campus consolidation			1Q-4Q	1Q-4Q	1Q-4Q			
Computing and Network Management Services								
Continue operations of the NCR LAN/WAN								4Q

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

COST ($ in Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0106 Modeling & Simulation	0	0	103,680	106,497	108,090	110,120	111,397	112,713
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note: FY04 and FY05 funding for this effort was under the Ballistic Missile Defense System (BMDS), Program Element 0603890C, Project 0101

A. Mission Description and Budget Item Justification

The mission of the Missile Defense Agency (MDA) is to develop an integrated layered Ballistic Missile Defense System (BMDS) to defend the United States, its deployed forces, friends and allies from ballistic missiles of all ranges and in all phases of flight. Modeling and Simulation (M&S) plays a key role in both developing the BMDS and assessing its likely effectiveness. M&S is responsible for providing credible system-level models and simulations to model the elements of an integrated BMDS.

In order to strengthen the Agency's M&S program, a significant modeling and simulation effort, leveraging existing element models, linked and integrated at the system-level and oriented for future development of the BMDS is essential. Under this Project, legacy modeling and simulation (M&S) tools and simulations will address near-term IDO and Block 04 objectives and provide warfighter support and sustainment for BMDS. We will establish a modeling and simulation framework to assess overall BMDS interoperability and performance. It will provide development, training and operations at the system-level, and improve the BMDS through incremental improvements and Block upgrades over time.

Model Development:

MDA employs a comprehensive, collaborative system engineering process that defines required system-wide performance, validates element designs, and assesses and verifies integrated system capability. M&S includes the development, verification, validation, and accreditation of system-level models and simulations required for the development, testing, assessment, deployment, and operation of the BMDS. A comprehensive M&S plan based on needs and expectations for IDO and Block 04 and beyond includes sustaining the legacy M&S tools, establishing and aligning enterprise M&S processes, developing an integrated BMDS M&S open architecture, defining a Common Environment and Threat Model (CETM), and building an M&S foundation for international missile defense initiatives.

The sustainment of legacy M&S tools focuses on the maintenance and operation of existing models and simulations to meet the short-term needs of the Agency. The legacy M&S tools will address IDO and Block 04 initiatives. These M&S tools will undergo a detailed M&S requirements engineering assessment prior to verification, validation and accreditation for the IDO and Block 04 events. We will update these system-level models and simulations as necessary providing accredited representations of the deployed Block 2004 BMDS.

The M&S program will establish and align enterprise processes for cross-agency synchronization and develop a standardized work breakdown structure for M&S activities agency wide. The enterprise processes include development and maintenance, requirements engineering, configuration management, verification and validation (V&V), accreditation, information assurance, and program protection responsibilities required to provide credible M&S tools.

The M&S framework will mirror the capabilities of the BMDS open architecture. M&S priorities for Block 06 and beyond include developing and delivering a fully integrated M&S framework that evolves over time through spiral development. The M&S framework consists of three types of capabilities:

- Type 1:Mission Effects - Planning and Integration of BMDS With Other War fighting Mission Areas
- Type 2: Engagement Effects- Capability Assessment, C2BMC CONOPS Development and Training
- Type 3: Engineering Effects- Engineering Design, Integration, Testing and Verification of Element and Component Specifications

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

In order to respond to a rapidly changing threat and take advantage of advances in technology, M&S will define a Common Environment and Threat Model (CETM). The CETM will provide a framework and rule set for the standardized representation of the battlespace environment and adversary capabilities. M&S will assess existing threat and environment models, then define, develop and integrate these tools into the CETM. The CETM domain will include active and passive signatures of threat objects and their kinematics and operational behaviors, the relevant natural and perturbed battlespace environment, the effects of this environment on threats and defensive systems, and a common way of dealing with the effectiveness and consequences of missile defense engagements. The M&S framework will define the criteria for the required CETM characteristics for all simulation types.

In line with the MDA international goals, M&S will build a foundation for International Missile Defense Initiatives by partnering on defining requirements and interfaces for an open system modeling framework.

Test and Operations:

The M&S program coordinates initiatives with the MDA Test and Operations directorates.

To effectively organize and execute the BMDS Test Bed Engineering effort, two collaborative structures manage the entire engineering process from concept through development to operational integration. The division of labor for these structures is the Responsible Engineering Organization (REO), led by MDA System Engineering and Integration; and the Responsible Test Organization (RTO), led by MDA Test and Evaluation. The REO leads Test Bed Planning, BMDS Design, Development and Integration. The RTO leads Test and Verification. REO supports Force Structure Integration and Deployment and the User in the procurement and fielding of as militarily useful BMD capability.

MDA employs an integrated system-level approach to testing, bringing together the contributions of various BMDS elements into combined test events where practical. These system test events are comprised of two or more elements interacting to verify the capability of the larger system in one or more engagement sequences. The Integrated Master Test Plan synchronizes test events.

The M&S program will configure credible and accredited system-level tools to meet the needs of the war fighters, the developers, the testers, and the system engineers. M&S will accredit selected system-level models and simulations to support BMDS verification and assessments for the following venues: war games, ground tests, flight tests, constructive analysis, and training. M&S will develop, sustain, and modernize the M&S infrastructure to include laboratories and other computational facilities.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Model Development	0	0	69,387	71,166
RDT&E Articles (Quantity)	0	0	0	0

*Note: FY04 and FY05 funding for this effort was under the Ballistic Missile Defense System (BMDS), Program Element 0603890C, Project 0101

FY 2004 Accomplishments:

- Released Parametric Endo-Exo Lethality Simulation (PEELS): Version 10.1
- Released Post Engagement Ground Effects Model (PEGEM): Version 5.1
- Released Kinetic Impact Debris Distribution (KIDD): Version 5.1
- Released CT-Analyst: Version 2
- Released Extended Air Defense Simulation (EADSIM) v11, Theater High Altitude Area Defense System (THAAD) Representation Benchmark for JPOW8 Wargame (WG)

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

- Released Battle space Environment Satellite Toolkit (BEST) R1.1, accepted by Government and currently in Beta-Test by selected participants from the BMD user community
- Released Commanders Analysis and Planning Simulation (CAPS) v 8.0, International Version
- Released Missile Defense Wargame (MDWAR) v 4.3 , 5.0, 5.1
- Developed Monthly Technical, Cost and Schedule Reports

FY 2005 Planned Accomplishments:

- Initiate and complete Model Assessments
- Assess Existing Threat and Environment Tools
- Define M&S Framework
- Define Common Environment and Threat Model (CETM)
- Demonstrate CETM v 0.5
- Define all M&S Sim Type Capabilities
- Plan, Build and Integrate CETM Version 1.0
- Define Criteria for Accuracy/Detail per Sim Type Capabilities
- Define and Develop SIM Type 1 use (Mission Effects) for Planning and Integration of BMDS With Other War fighting Mission Areas
- Define M&S Enterprise processes Release Version 1.0
- Release Parametric Endo-Exo Lethality Simulation (PEELS): Version 10.2, 11.0
- Release Post Engagement Ground Effects Model (PEGEM): Version 5.2, 6.0
- Release Kinetic Impact Debris Distribution (KIDD): Version 5.6, 6.0
- Release Performance Assessment Workbench Software (PAWS): Version 2.0, 3.0
- Release CT-Analyst: Version 3
- Release EADSIM v12, THAAD Representation Accreditation to support Wargames
- Release BEST R1.2
- Release Next Generation Flowfield Solver
- Release FLITES
- Release Strategic Scene Generation Model (SSGM) 99.4
- Release Optical Signature Code (OSC) v 20.2
- Release Missile Defense Wargame (MDWAR) v 5.2, 6.0, 6.1
- Develop Monthly Technical, Cost and Schedule Reports
- Develop Reference Manuals, User Manuals, Methodology Manuals, Configuration Manuals, Assessment Reports and Vision Documents

FY 2006 Planned Program:

- Release Type 1 Capabilities
- Define and Develop M&S Framework
- Release Common Environment and Threat Model (CETM) v 1.0, define and begin development on CETM v 2.0 functionality
- Define and Develop SIM Type 2 and 3 Capabilities
- Type 2 Capabilities (Engagement Effects) for Capability Assessment, C2BMC CONOPS Development and Training

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

- Type 3 Capabilities (Engineering Effects) for Engineering Design, Integration, Testing and Verification of Element and Component Specifications
- Develop foundation for International M&S
- Begin Collaboration with International partners on defining requirements and interfaces for an open system modeling framework
- Complete M&S Enterprise processes Release Version 1.0
- Release Parametric Endo-Exo Lethality Simulation (PEELS): Version 11.2, 11.4
- Release Post Engagement Ground Effects Model (PEGEM): Version 6.2, 6.4
- Release Kinetic Impact Debris Distribution (KIDD): Version 6.2, 6.4
- Release CT-Analyst: Version 4
- Release EADSIM, v13, THAAD Representation Accreditation to support Wargames
- Release BEST R2
- Release SOCRATES-P
- Release Optical Signature Code (OSC) 21
- Release Commanders Analysis and Planning Simulation (CAPS) v 9.0 and 9.1
- Release Missile Defense Wargame (MDWAR) v 6.2, 7.0
- Develop Monthly Technical, Cost and Schedule Reports
- Develop Reference Manuals, User Manuals, Methodology Manuals, Configuration Manuals, Assessment Reports and Vision Documents

FY 2007 Planned Program:

- Release Type 2 Capabilities
- Continue to Develop M&S Framework
- Continue to Update Common Environment and Threat Model (CETM)
- Continue to Develop SIM Type 1,2,3 Capabilities
- Continue Collaboration with International partners on defining requirements and interfaces for an open system modeling framework
- Continuous process improvement of M&S Enterprise processes
- Release Parametric Endo-Exo Lethality Simulation (PEELS): Version 12.0
- Release Post Engagement Ground Effects Model (PEGEM): Version 7.0
- Release Kinetic Impact Debris Distribution (KIDD): Version 7.0
- Release CT-Analyst: Version 5
- Release EADSIM, v14, THAAD Representation Accreditation to support Wargames
- Release BEST R3
- Release Optical Signature Code (OSC) 22
- Release Commanders Analysis and Planning Simulation (CAPS) v 10.0 and 10.1
- Release Missile Defense Wargame (MDWAR) v 7.1
- Develop Monthly Technical, Cost and Schedule Reports
- Develop Reference Manuals, User Manuals, Methodology Manuals, Configuration Manuals, Assessment Reports and Vision Documents

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

	FY 2004	FY 2005	FY 2006	FY 2007
Product Test and Operations	0	0	23,148	23,741
RDT&E Articles (Quantity)	0	0	0	0

Note: FY04 and FY05 funding for this effort was under the Ballistic Missile Defense System (BMDS), Program Element 0603890C, Project 0101

FY 2004 Accomplishments:

- Developed Accreditation Reports of Selected Models, Simulations, and Federations
- Developed Benchmark Reports for Wargames, Ground Tests, Flight Tests, Constructive Analysis, and Training
- Developed Test Assessment Reports for Wargames, Ground Tests, Flight Tests, Constructive Analysis, and Training
- Developed, Sustained and Modernized M&S Laboratories and Computational Facilities

FY 2005 Planned Accomplishments:

- Accredit Selected Models, Simulations, and Federations for Wargames, Ground Tests, Flight Tests, Constructive Analysis, and Training
- Develop Accreditation Reports:
  - Parametric Endo-Exo Lethality Simulation (PEELS): THAAD Live Fire Test and Evaluation (LFT&E)
  - Post Engagement Ground Effects Model (PEGEM), Kinetic Impact Debris Distribution (KIDD): Operational, JC05
  - CT-Analyst: Operational
- Develop Benchmark Reports for Wargames, Ground Tests, Flight Tests, Constructive Analysis, and Training
- Develop Test Assessment Reports for Wargames, Ground Tests, Flight Tests, Constructive Analysis, and Training
- Develop, Sustain and Modernize M&S Laboratories and Computational Facilities

FY 2006 Planned Program:

- Accredit Selected Models, Simulations, and Federations for Wargames, Ground Tests, Flight Tests, Constructive Analysis, and Training
- Develop Accreditation Reports:
  - Parametric Endo-Exo Lethality Simulation (PEELS): KI, THAAD, Aegis, Ground-based Midcourse Defense (GMD)
  - Post Engagement Ground Effects Model (PEGEM), Kinetic Impact Debris Distribution (KIDD): Kinetic Interceptors (KI), Operational, Joint Project Optic Windmill (JPOW) IX
  - CT-Analyst: Operational
- Develop Benchmark Reports for Wargames, Ground Tests, Flight Tests, Constructive Analysis, and Training
- Develop Test Assessment Reports for Wargames, Ground Tests, Flight Tests, Constructive Analysis, and Training
- Develop, Sustain and Modernize M&S Laboratories and Computational Facilities

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

FY 2007 Planned Program:

- Accredit Selected Models, Simulations, and Federations for Wargames, Ground Tests, Flight Tests, Constructive Analysis, and Training
- Develop Accreditation Reports:
  - Parametric Endo-Exo Lethality Simulation (PEELS): THAAD, Aegis, GMD
  - Post Engagement Ground Effects Model (PEGEM), Kinetic Impact Debris Distribution (KIDD): Operational, JC07
  - CT-Analyst: Operational
- Integrate and Test SIM Type 1,2,3 use
- Develop Benchmark Reports for Wargames, Ground Tests, Flight Tests, Constructive Analysis, and Training
- Develop Test Assessment Reports for Wargames, Ground Tests, Flight Tests, Constructive Analysis, and Training
- Develop, Sustain and Modernize M&S Laboratories and Computational Facilities

	FY 2004	FY 2005	FY 2006	FY 2007
Systems Engineering and Integration (SE&I)	0	0	11,145	11,590
RDT&E Articles (Quantity)	0	0	0	0

Note: FY04 and FY05 funding for this effort was under the Ballistic Missile Defense System (BMDS), Program Element 0603890C, Project 0101

M&S Program Management is leading an integrated MDA team approach using skills from government, industry, and academia. M&S Program Management is responsible for managing a team of government, FFRDCs/UARCs and SETA to provide a comprehensive plan for M&S based on needs and expectations for IDO and Block 04. These needs and expectations include sustaining the legacy M&S tools, establishing and aligning enterprise M&S processes, defining a Common Environment and Threat Model (CETM), developing an integrated BMDS M&S open framework, and building an M&S foundation for international missile defense initiatives

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

C. Other Program Funding Summary

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	226,765	231,145	136,241	184,877	197,229	205,191	212,435	218,763	1,612,646
PE 0603879C Advanced Concepts, Evaluations and Systems	132,701	159,878	0	0	0	0	0	0	292,579
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	860,794	928,388	1,143,610	1,034,676	879,674	617,319	731,282	485,512	6,681,255
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3,731,708	4,521,019	3,266,196	3,945,991	3,650,848	3,315,513	3,183,622	2,545,882	28,160,779
PE 0603883C Ballistic Missile Defense Boost Defense Segment	475,911	476,179	483,863	648,728	620,793	690,807	811,430	1,183,182	5,390,893
PE 0603884C Ballistic Missile Defense Sensors	417,814	577,297	529,829	995,711	1,214,008	1,186,134	1,069,208	1,018,614	7,008,615
PE 0603886C Ballistic Missile Defense System Interceptors	114,669	279,815	229,658	444,900	677,243	1,137,337	1,468,827	1,717,507	6,069,956
PE 0603888C Ballistic Missile Defense Test and Targets	616,773	720,818	622,357	684,170	608,282	643,119	661,362	670,092	5,226,973
PE 0603889C Ballistic Missile Defense Products	309,949	383,830	455,152	509,982	509,161	516,599	516,017	515,729	3,716,419
PE 0603890C Ballistic Missile Defense System Core	449,747	399,829	447,006	538,442	532,412	530,934	520,679	531,832	3,950,881
PE 0603891C Special Programs - MDA	0	0	349,522	482,903	826,173	1,097,252	1,015,198	1,244,072	5,015,120
PE 0605502C Small Business Innovative Research - MDA	146,030	0	0	0	0	0	0	0	146,030
PE 0901585C Pentagon Reservation	16,251	13,761	17,386	15,586	6,058	6,376	4,490	4,725	84,633
PE 0901598C Management Headquarters - MDA	92,100	113,777	99,327	95,443	98,984	98,728	81,492	81,760	761,611
Air Force – Other Procurement	0	0	2,400	1,453	11,279	386	17,710	25,709	58,937
Air Force – Operations and Maintenance	0	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
Air Force – Military Personnel	0	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
Army – Operations and Maintenance	37,600	49,597	66,974	68,246	69,809	71,472	73,325	75,230	512,253
Army National Guard – Operations and Maintenance	0	0	155	151	150	154	164	167	941
Army National Guard – Military Personnel	21,000	21,000	17,648	24,432	24,952	25,591	25,591	25,591	185,805
Navy – Operations and Maintenance	0	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PAC-3/MEADS – RDT&E	433,728	344,978	304,973	336,959	465,395	521,791	522,418	502,961	3,433,203
PAC-3/MEADS – Missile Procurement	841,964	574,972	581,924	578,579	660,584	616,020	509,032	738,679	5,101,754

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

D. Acquisition Strategy

The M&S acquisition strategy is to build an integrated open system framework for Block 06 and beyond. The initial phase of the strategy will involve detailed M&S requirements engineering and legacy M&S tools. The results of the requirements engineering and legacy M&S tool assessment will drive the use, modify, make, or buy decisions that roll selected M&S Tools into the developing Integrated BMDS M&S Framework that supports the spiral development of the BMDS.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Product Development										

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Model Development										
M&S Tools	CPAF	Northrop Grumman/ JNIC/CO	0	0	N/A	10,549	1Q	10,820	1Q	21,369
M&S Tools	TM	DSI, GSA/ AL	0	0	N/A	2,693	1Q	2,762	1Q	5,455
M&S Tools	CPAF	TBE/ PEO ASMD/AL	0	0	N/A	4,711	1Q	4,831	1Q	9,542
M&S Tools	CPAF	PEO ASMD/ AL	0	0	N/A	837	1Q	859	1Q	1,696
M&S Tools	CPAF	JTAGS/ PEO ASMD/AL	0	0	N/A	591	1Q	607	1Q	1,198
M&S Tools	Various	SBIRS/MCS/ Air Force	0	0	N/A	419	1Q	429	1Q	848
M&S Tools	Various	JNIC/ CO	0	0	N/A	628	1Q	644	1Q	1,272
M&S Tools	MIPR	GMD/ AL	0	0	N/A	837	1Q	859	1Q	1,696
M&S Tools	MIPR	SPAWAR/ CA	0	0	N/A	1,832	1Q	1,879	1Q	3,711

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
M&S Tools	Various	USA Net Design Facility/ PEO ASMD/AL	0	0	N/A	523	1Q	537	1Q	1,060
M&S Tools	MIPR	THAAD/ AL	0	0	N/A	1,884	1Q	1,933	1Q	3,817
M&S Tools	CPAF	Lockheed Martin/ PA	0	0	N/A	2,094	1Q	2,147	1Q	4,241
M&S Tools	Various	Patriot	0	0	N/A	471	1Q	483	1Q	954
M&S Tools	MIPR	Photon Research Associates/ VA	0	0	N/A	6,176	1Q	6,335	1Q	12,511
M&S Tools	CPFF	NRL/ Washington, DC	0	0	N/A	2,408	1Q	2,469	1Q	4,877
M&S Tools	CPFF	AFRL-PR/ CA	0	0	N/A	837	1Q	859	1Q	1,696
M&S Tools	CPFF	AFRL-VS/ MA	0	0	N/A	209	1Q	215	1Q	424
M&S Tools	CPFF	AFRL-MN/ FL	0	0	N/A	105	1Q	107	1Q	212
M&S Tools	CPFF	AFRL-SN/ OH	0	0	N/A	105	1Q	107	1Q	212
M&S Tools	CPFF	SMDC/ AL	0	0	N/A	628	1Q	644	1Q	1,272
M&S Tools	MIPR	NASIC/ OH	0	0	N/A	209	1Q	215	1Q	424
M&S Tools	MIPR	MISIC/ AL	0	0	N/A	209	1Q	215	1Q	424
M&S Tools	FFP	SPARTA/ CA	0	0	N/A	53	1Q	55	1Q	108

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
M&S Tools	CPIF	TBE/ SMDC/AL	0	0	N/A	1,926	1Q	1,976	1Q	3,902
M&S Tools	MIPR	ITT, GSA/ AL	0	0	N/A	2,319	1Q	2,378	1Q	4,697
M&S Tools	FFP	CSC/ SMDC/GA	0	0	N/A	900	1Q	923	1Q	1,823
M&S Tools	FFP	Dynetics/ SMDC/GA	0	0	N/A	262	1Q	268	1Q	530
M&S Tools	MIPR	Miltec, GSA/ GA	0	0	N/A	916	1Q	939	1Q	1,855
M&S Tools	MIPR	BAE, GSA/ GA	0	0	N/A	1,612	1Q	1,653	1Q	3,265
M&S Tools	FFP	NRL/ VA	0	0	N/A	497	1Q	510	1Q	1,007
M&S Tools	MIPR	FBX-T/ VA	0	0	N/A	837	1Q	859	1Q	1,696
*M&S Framework	CPAF	TBD	0	0	N/A	21,110	1Q	21,649	1Q	42,759
Product Test and Operations										
M&S Tools	TM	DSI, GSA/ SMDC/AL	0	0	N/A	309	1Q	317	1Q	626
M&S Tools	CPIF	TBE/ SMDC/AL	0	0	N/A	314	1Q	322	1Q	636
M&S Tools	MIPR	SPARTA/ VA	0	0	N/A	398	1Q	408	1Q	806
Computational Facilities	Various	VARIOUS	0	0	N/A	22,127	1Q	22,694	1Q	44,821
Subtotal Support Costs			0	0		92,535		94,907		187,442

Remarks

Previous Year funding for this effort was under the Ballistic Missile Defense System (BMDS), Program Element 0603890C, Project 0101.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

*The M&S Framework represents funding for the Block 06 common M&S framework for all system level models. The M&S framework will model the entire BMDS for all venues. We have defined the requirements for the architecture, implementation framework and simulation uses. The acquisition strategy to transition to an open architecture approach will include legacy M&S tools, FFRDCs/UARCs, SETA and laboratories and other computational facilities.

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										

Remarks

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Systems Engineering and Integration (SE&I)										
SETA	FFP	MDA/ VA	0	0	N/A	2,234	1Q	2,323	1Q	4,557
FFRDCs/UARCs and other government labs	FFRDC	JHU/APL/ MD	0	0	N/A	4,352	1Q	4,526	1Q	8,878
FFRDCs/UARCs and other government labs	FFRDC	Aerospace/ CA	0	0	N/A	441	1Q	458	1Q	899
FFRDCs/UARCs and other government labs	FFRDC	MIT/LL/ MA	0	0	N/A	743	1Q	773	1Q	1,516
FFRDCs/UARCs and other government labs	FFRDC	MITRE/ VA	0	0	N/A	1,267	1Q	1,318	1Q	2,585
FFRDCs/UARCs and other government labs	FFRDC	Torch Industries/ VA	0	0	N/A	80	1Q	83	1Q	163
Gov`t Personnel		MDA/ VA	0	0	N/A	1,872	1Q	1,947	1Q	3,819
Travel			0	0	N/A	156	1Q	162	1Q	318

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Management Services			0	0		11,145		11,590		22,735

Remarks

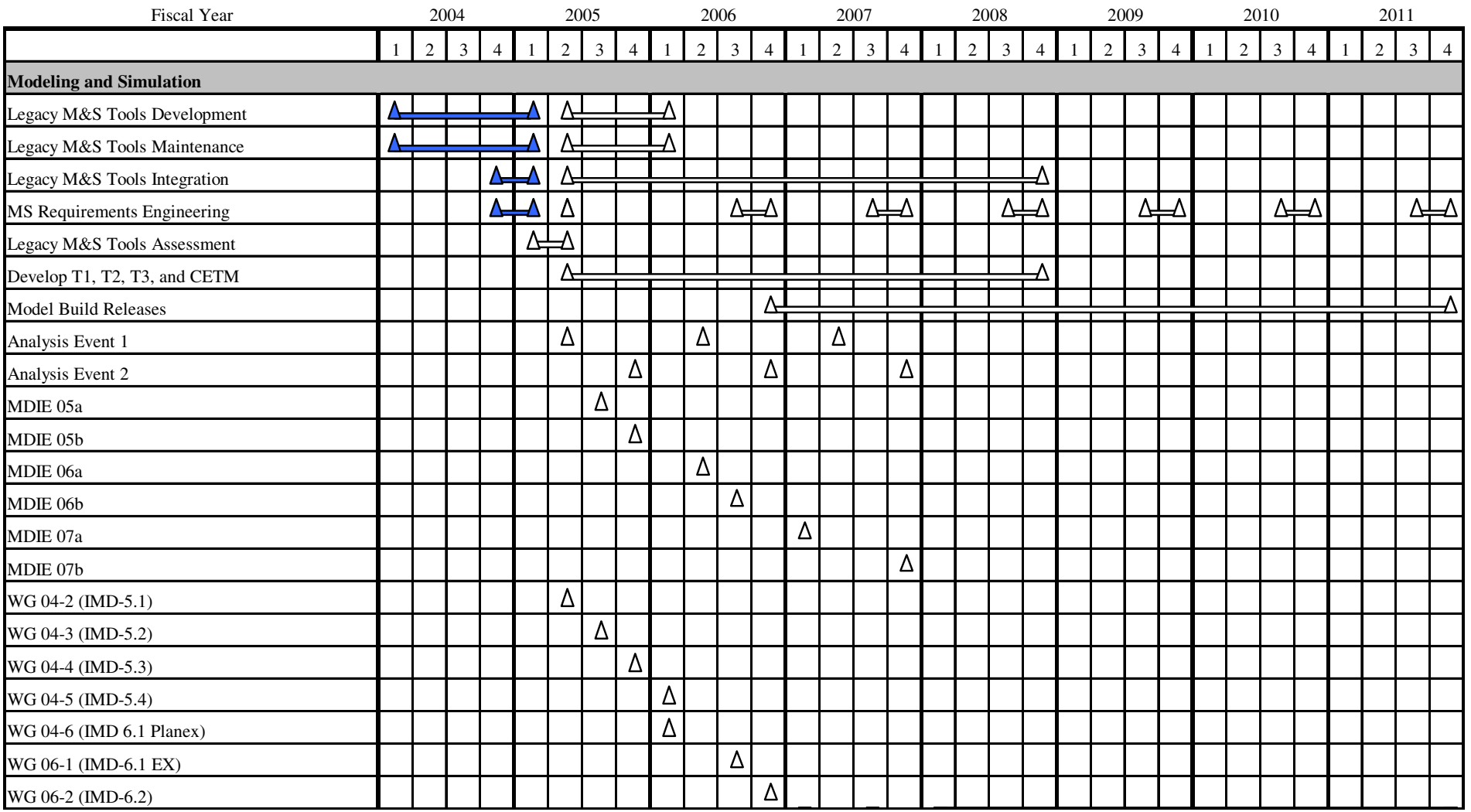
Previous Year funding for this effort was under the Ballistic Missile Defense System (BMDS), Program Element 0603890C, Project 0101

Project Total Cost			0	0		103,680		106,497		210,177

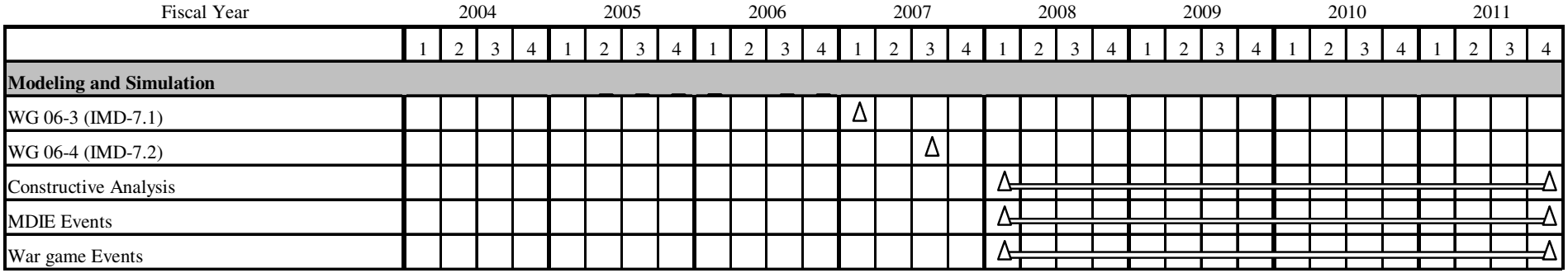
Remarks

Previous Year funding for this effort was under the Ballistic Missile Defense System (BMDS), Program Element 0603890C, Project 0101

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Modeling and Simulation								
Legacy M&S Tools Development	1Q-4Q	1Q-4Q	1Q					
Legacy M&S Tools Maintenance	1Q-4Q	1Q-4Q	1Q					
Legacy M&S Tools Integration	4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q			
MS Requirements Engineering	4Q	1Q-2Q	3Q-4Q	3Q-4Q	3Q-4Q	3Q-4Q	3Q-4Q	3Q-4Q
Legacy M&S Tools Assessment		1Q-2Q						
Develop T1, T2, T3, and CETM		2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q			
Model Build Releases			4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Analysis Event 1		2Q	2Q	2Q				
Analysis Event 2		4Q	4Q	4Q				
PEELS: Version 10.1 Release	2Q							
MDIE 05a		3Q						
MDIE 05b		4Q						
MDIE 06a			2Q					
MDIE 06b			3Q					
MDIE 07a				1Q				
MDIE 07b				4Q				
WG 04-2 (IMD-5.1)		2Q						
WG 04-3 (IMD-5.2)		3Q						
WG 04-4 (IMD-5.3)		4Q						
WG 04-5 (IMD-5.4)			1Q					
WG 04-6 (IMD 6.1 Planex)			1Q					
WG 06-1 (IMD-6.1 EX)			3Q					
WG 06-2 (IMD-6.2)			4Q					
WG 06-3 (IMD-7.1)				1Q				
WG 06-4 (IMD-7.2)				3Q				
Constructive Analysis					1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
MDIE Events					1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Wargame Events					1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

Common Environment and Threat Model, CETM; Missile Defense Integration Exercise, MDIE; War Game (WG)

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

COST ($ in Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0107 Safety, Quality and Mission Assurance	0	0	19,694	20,800	21,123	21,890	20,654	21,143
RDT&E Articles Qty	0	0	0	0	0	0	0	0

Note:
The prior year (PY) and the FY05 funding for Software Acquisition Improvement Program in the amount of $4,362M is captured in Project 0101, and for Safety, Quality, and Mission Assurance the amount of $12,000M is captured in PE 0603882C Project 0602.

A. Mission Description and Budget Item Justification

The Missile Defense Agency Safety, Quality and Mission Assurance Directorate (MDA/QS) is an essential element in ensuring the successful implementation of MDA Programs throughout the Ballistic Missile Defense System (BMDS). This Directorate is the BMDS change agent responsible for establishing a safety, quality and mission assurance centric culture, through disciplines and philosophy to bear upon the development and fielding of the BMDS. As a critical activity in MDA BMDS efforts, The Safety, Quality and Mission Assurance Directorate's mission is to develop and implement policies, perform engineering and technical studies and to foster and ensure MDA system-wide safety, quality and mission assurance (SQMA). This Directorate is also responsible for implementing the 2003 Defense Authorization Act, Section 804, which requires MDA/BMDS to establish and implement a program to improve the software acquisition process. The MDA/BMDS SQMA and software acquisition improvement activities performed by this Directorate encompass the development, engineering, testing, production, and fielding of ballistic missile defense elements under the cognizance of MDA. The efforts of this Directorate enables the development, testing and fielding of an effective, reliable, and safe missile defense capability. Within the Safety, Quality and Mission Assurance Directorate, responsibilities are functionally allocated to four groups; Assurance Integration, Mission Assurance, Quality Assurance and Safety.

To ensure the BMDS can meet its performance, schedule, quality, safety, and mission assurance requirements, MDA SQMA principles have been applied throughout each individual element and the BMDS as a whole. These functions include establishment of MDA BMDS safety plans, development and maintenance of the MDA/BMDS Mission Assurance Provisions (MAP), BMDS development and maintenance of Mission Assurance Provision Implementation Plans (MAIP), independent technical assessments of BMDS element SQMA efforts, establishing relationships with DOD and Military Service SQMA organizations, instituting SQMA in MDA/BMDS acquisitions and establishing a Quality-centric culture and implementation to ensure mission success. SQMA is key to providing the effective war-fighting capability and ensuring all phases including life-cycle support are addressed within the confines on the BMDS.

Personnel: Provides funding for government salaries and benefits at the Missile Defense Agency that are associated with safety, quality, and mission assurance.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Safety, Quality and Mission Assurance	0	0	19,694	20,800
RDT&E Articles (Quantity)	0	0	0	0

The prior year (PY) and the FY05 funding for Software Acquisition Improvement Program in the amount of $4,362M is captured in Project 0101, and for Safety, Quality, and Mission Assurance the amount of $12,000M is captured in PE 0603882C Project 0602.

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

FY 2005 Planned Accomplishments:

- Develop Mission Assurance Provisions (MAP) for all BMDS elements
- Coordinate implementation of Mission Assurance Implementation Plans (MAIP)
- Implement Safety, Quality, and Mission Assurance forums
- Embed QS personnel in MDA organizations to provide BMDS Quality and Mission Assurance expertise
- Provide technical support to MDA Programs and the BMDS to develop and implement required safety, quality, and mission assurance requirements
- Establish a BMDS integrated MDA Metrics Program
- Participant in the BMDS Joint Reliability, Availability, Maintainability Evaluation Team (JRMET)
- Implement and maintain MDA's Safety and Quality Concerns Hotline
- Establish MDA safety policies and requirements for MDA and the BMDS
- Develop Capability Verification and Assessment addendum detailing the capability of the BMDS to operate safely for Block 04
- Establish a MDA Safety Review Board
- Establish MDA Safety Council and BMDS Safety Working Groups
- Develop MDA Mishap Investigation Program
- Develop Range Safety mediation, augmentation, and commonality program
- Establish MDA BMDS Safety Officer Program
- Perform Occupational Safety and Health Inspections of MDA facilities
- Develop a Software Acquisition Program Improvement Program Plan (SAIPP)
- Pilot MDA Software Readiness Levels (SWRLs)
- Revise and implement MDA Software Acquisition Process Framework (MSAPF)
- Develop Software Acquisition Training/Education Program (SAT/EP)

FY 2006 Planned Program:

- Implement MDA Assurance Provisions
- Assess implementation of BMDS MAIPs through assessments to ensure mission success
- Conduct MDA BMDS Safety, Quality, and Mission Assurance forums
- Embed QS personnel in MDA BMDS organizations to provide Quality and Mission Assurance expertise
- Provide technical support to MDA Programs and BMDS to develop and implement required safety, quality, and mission assurance requirements
- Implement an integrated BMDS MDA Metrics Program
- Participant in the BMDS Joint Reliability, Availability, Maintainability Evaluation Team (JRMET)
- Implement and maintain MDA's Safety and Quality Concerns Hotline
- Revise MDA safety policies and requirements for MDA and the BMDS
- Develop Capability Verification and Assessment addendum detailing the capability of the BMDS to operate safely for Block 06
- Implement a MDA Safety Review Board
- Implement MDA Safety Council and BMDS Safety Working Groups
- Implement MDA Mishap Investigation Program
- Conduct Independent Safety Assessments/Reviews of MDA Programs and BMDS

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

- Implement Range Safety mediation, augmentation, and commonality program
- Establish MDA BMDS Safety Officer Program
- Perform Occupational Safety and Health Inspections of MDA facilities
- Implement Software Acquisition Program Improvement Program Plan (SAIPP)
- Implement MDA Software Readiness Levels (SWRLs)
- Implement MDA Software Acquisition Process Framework (MSAPF)
- Develop Software Acquisition Training/Education Program (SAT/EP)
- Develop MDA Software Verification and Validation Program (MSVVP)

FY 2007 Planned Program:

- Implement MDA Assurance Provisions
- Assess implementation of BMDS MAIPs through assessments to ensure mission success
- Conduct MDA BMDS Safety, Quality, and Mission Assurance forums
- Embed QS personnel in MDA BMDS organizations to provide Quality and Mission Assurance expertise
- Provide technical support to MDA Programs and BMDS to develop and implement required safety, quality, and mission assurance requirements
- Revise/update the integrated BMDS MDA Metrics Program
- Participant in the BMDS Joint Reliability, Availability, Maintainability Evaluation Team (JRMET)
- Implement and maintain MDA's Safety and Quality Concerns Hotline
- Implement MDA safety policies and requirements for MDA and the BMDS
- Revise Capability Verification and Assessment addendum detailing the capability of the BMDS to operate safely
- Implement a MDA Safety Review Board
- Implement MDA Safety Council and BMDS Safety Working Groups
- Conduct MDA Mishap Investigation Program
- Conduct Independent Safety Assessments/Reviews of MDA Programs and BMDS
- Conduct Range Safety mediation, augmentation, and commonality program
- Implement MDA BMDS Safety Officer Program
- Perform Occupational Safety and Health Inspections of MDA facilities
- Continued update and implementation of the Software Acquisition Program Improvement Program Plan (SAIPP)
- Conduct MDA Software Readiness Levels (SWRLs)
- Conduct MDA Software Acquisition Process Framework (MSAPF)
- Implement Software Acquisition Training/Education Program (SAT/EP)
- Develop MDA Software Verification and Validation Program (MSVVP)

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

C. Other Program Funding Summary

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	226,765	231,145	136,241	184,877	197,229	205,191	212,435	218,763	1,612,646
PE 0603879C Advanced Concepts, Evaluations and Systems	132,701	159,878	0	0	0	0	0	0	292,579
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	860,794	928,388	1,143,610	1,034,676	879,674	617,319	731,282	485,512	6,681,255
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3,731,708	4,521,019	3,266,196	3,945,991	3,650,848	3,315,513	3,183,622	2,545,882	28,160,779
PE 0603883C Ballistic Missile Defense Boost Defense Segment	475,911	476,179	483,863	648,728	620,793	690,807	811,430	1,183,182	5,390,893
PE 0603884C Ballistic Missile Defense Sensors	417,814	577,297	529,829	995,711	1,214,008	1,186,134	1,069,208	1,018,614	7,008,615
PE 0603886C Ballistic Missile Defense System Interceptors	114,669	279,815	229,658	444,900	677,243	1,137,337	1,468,827	1,717,507	6,069,956
PE 0603888C Ballistic Missile Defense Test and Targets	616,773	720,818	622,357	684,170	608,282	643,119	661,362	670,092	5,226,973
PE 0603889C Ballistic Missile Defense Products	309,949	383,830	455,152	509,982	509,161	516,599	516,017	515,729	3,716,419
PE 0603890C Ballistic Missile Defense System Core	449,747	399,829	447,006	538,442	532,412	530,934	520,679	531,832	3,950,881
PE 0603891C Special Programs - MDA	0	0	349,522	482,903	826,173	1,097,252	1,015,198	1,244,072	5,015,120
PE 0605502C Small Business Innovative Research - MDA	146,030	0	0	0	0	0	0	0	146,030
PE 0901585C Pentagon Reservation	16,251	13,761	17,386	15,586	6,058	6,376	4,490	4,725	84,633
PE 0901598C Management Headquarters - MDA	92,100	113,777	99,327	95,443	98,984	98,728	81,492	81,760	761,611
Air Force – Other Procurement	0	0	2,400	1,453	11,279	386	17,710	25,709	58,937
Air Force – Operations and Maintenance	0	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
Air Force – Military Personnel	0	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
Army – Operations and Maintenance	37,600	49,597	66,974	68,246	69,809	71,472	73,325	75,230	512,253
Army National Guard – Operations and Maintenance	0	0	155	151	150	154	164	167	941
Army National Guard – Military Personnel	21,000	21,000	17,648	24,432	24,952	25,591	25,591	25,591	185,805
Navy – Operations and Maintenance	0	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PAC-3/MEADS – RDT&E	433,728	344,978	304,973	336,959	465,395	521,791	522,418	502,961	3,433,203
PAC-3/MEADS – Missile Procurement	841,964	574,972	581,924	578,579	660,584	616,020	509,032	738,679	5,101,754

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

D. Acquisition Strategy

The execution of program activities is a collaborative effort involving subject matter experts composed of Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), Science and Engineering and Technical Assistance (SETA), and Industry. In addition extensive involvement by the major defense contractors responsible for implementation of the MAP requirements is required. Safety, Quality, and Mission Assurance and Software Acquisition Improvement initiates will be executed by MDA directorates and industry contractors.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Safety, Quality and Mission Assurance										
S/W Acq	SS/TM	STSC/ Hill AFB, UTAH	0	0	N/A	400	1/2Q	400	1/2Q	800
S/W Acq	C/FFP	Sparta/ AL, MD, VA	0	0	N/A	500	1/2Q	500	1/2Q	1,000
Subtotal Product Development			0	0		900		900		1,800

Remarks

The prior year (PY) and the FY05 funding for Software Acquisition Improvement Program in the amount of $4,362M is captured in Project 0101, and for Safety, Quality, and Mission Assurance the amount of $12,000M is captured in PE 0603882C Project 0602.

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Safety, Quality and Mission Assurance										
OGA Spt	SS/MIPR	NSWC Corona/ CA, VA	0	0	N/A	2,700	1/2Q	2,800	1/2Q	5,500
Safety & Quality	C/FFP	SRS Tech/ VA, MD	0	0	N/A	3,800	1/2Q	4,000	1/2Q	7,800
Mission Assurance	C/FFP	Swales/ VA, MD, NM, CA	0	0	N/A	2,800	1/2Q	3,526	1/2Q	6,326
Metrics	C/FFP	BAE/SMDC/ AL, VA, MD	0	0	N/A	1,844	1/2Q	1,844	1/2Q	3,688
Safety, Quality, and Mission Assurance	C/MIPR	ONR-BMPCOE/ VA, MD	0	0	N/A	600	1/2Q	600	1/2Q	1,200

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
OGA Spt	SS/MIPR	NSWC Crane/ IN, VA	0	0	N/A	700	1/2Q	700	1/2Q	1,400
Govt Spt	SS/MIPR	NSWC VA Beach/ VA	0	0	N/A	200	1Q	200	1Q	400
S/W Acq OGA Spt	SS/TM	SMDC/ AL	0	0	N/A	400	1Q	400	1Q	800
S/W Acquisition	C/FFRDC	SEI/ PA, VA	0	0	N/A	510	1Q	510	1Q	1,020
Subtotal Support Costs			0	0		13,554		14,580		28,134

Remarks

The prior year (PY) and the FY05 funding for Software Acquisition Improvement Program in the amount of $4,362M is captured in Project 0101, and for Safety, Quality, and Mission Assurance the amount of $12,000M is captured in PE 0603882C Project 0602.

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation										

Remarks

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award/ Oblg Date	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Safety, Quality and Mission Assurance										
QS Civilian Salaries	TM	MDA/ VA, MD, AL, CA, AZ, HI, AK, MA, NJ, FL, AR, UT, MH	0	0	N/A	5,240		5,320		10,560
Subtotal Management Services			0	0		5,240		5,320		10,560

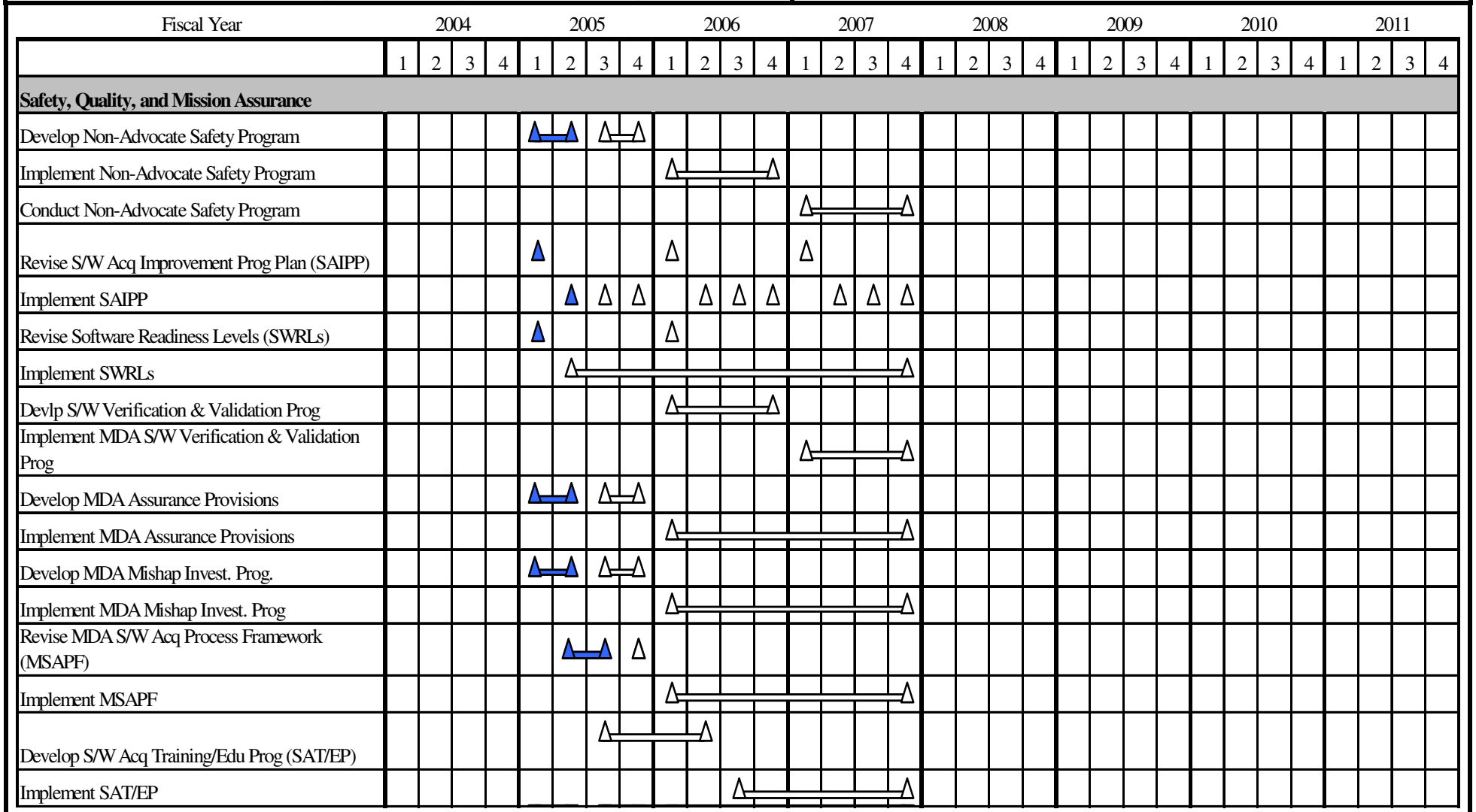
Remarks

The prior year (PY) and the FY05 funding for Software Acquisition Improvement Program in the amount of $4,362M is captured in Project 0101, and for Safety, Quality, and Mission Assurance the amount of $12,000M is captured in PE 0603882C Project 0602.

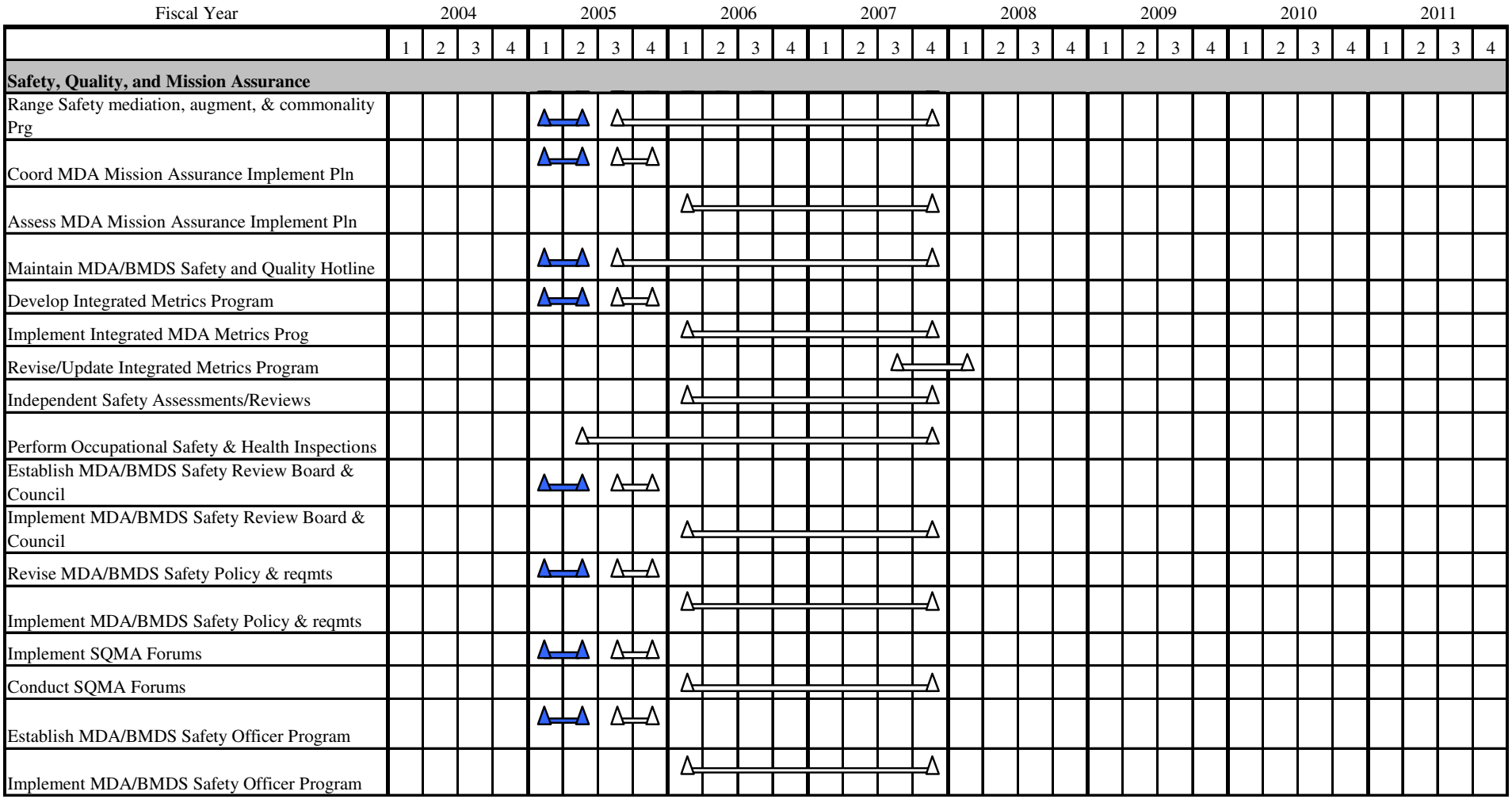
Project Total Cost			0	0		19,694		20,800		40,494

Remarks

Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**



Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Safety, Quality, and Mission Assurance								
Develop Non-Advocate Safety Program		1Q-4Q						
Implement Non-Advocate Safety Program			1Q-4Q					
Conduct Non-Advocate Safety Program				1Q-4Q				
Revise S/W Acq Improvement Prog Plan (SAIPP)		1Q	1Q	1Q				
Implement SAIPP		2Q,3Q,4Q	2Q,3Q,4Q	2Q,3Q,4Q				
Revise Software Readiness Levels (SWRLs)		1Q	1Q					
Implement SWRLs		2Q-4Q	1Q-4Q	1Q-4Q				
Devlp S/W Verification & Validation Prog			1Q-4Q					
Implement MDA S/W Verification & Validation Prog				1Q-4Q				
Develop MDA Assurance Provisions		1Q-4Q						
Implement MDA Assurance Provisions			1Q-4Q	1Q-4Q				
Develop MDA Mishap Invest. Prog.		1Q-4Q						
Implement MDA Mishap Invest. Prog			1Q-4Q	1Q-4Q				
Revise MDA S/W Acq Process Framework (MSAPF)		2Q-4Q						
Implement MSAPF			1Q-4Q	1Q-4Q				
Develop S/W Acq Training/Edu Prog (SAT/EP)		3Q-4Q	1Q-2Q					
Implement SAT/EP			3Q-4Q	1Q-4Q				
Range Safety mediation, augment, & commonality Prg		1Q-4Q	1Q-4Q	1Q-4Q				
Coord MDA Mission Assurance Implement Pln		1Q-4Q						
Assess MDA Mission Assurance Implement Pln			1Q-4Q	1Q-4Q				
Maintain MDA/BMDS Safety and Quality Hotline		1Q-4Q	1Q-4Q	1Q-4Q				
Develop Integrated Metrics Program		1Q-4Q						
Implement Integrated MDA Metrics Prog			1Q-4Q	1Q-4Q				
Revise/Update Integrated Metrics Program				3Q-4Q	1Q			
Independent Safety Assessments/Reviews			1Q-4Q	1Q-4Q				
Perform Occupational Safety & Health Inspections		2Q-4Q	1Q-4Q	1Q-4Q				
Establish MDA/BMDS Safety Review Board & Council		1Q-4Q						
Implement MDA/BMDS Safety Review Board & Council			1Q-4Q	1Q-4Q				

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Revise MDA/BMDS Safety Policy & reqmts		1Q-4Q						
Implement MDA/BMDS Safety Policy & reqmts			1Q-4Q	1Q-4Q				
Implement SQMA Forums		1Q-4Q						
Conduct SQMA Forums			1Q-4Q	1Q-4Q				
Establish MDA/BMDS Safety Officer Program		1Q-4Q						
Implement MDA/BMDS Safety Officer Program			1Q-4Q	1Q-4Q				

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

COST ($ in Thousands)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0602 Program-Wide Support	36,684	8,946	12,278	24,318	29,067	29,636	26,717	23,153
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common support functions across the entire program such as strategic planning, program integration, cost estimating, contracting, financial management to include preparation of financial statements, reimbursement of financial services provided by DFAS, internal review and audit, earned-value management, and program assessment. Includes costs for both government civilians performing these functions as well as support contractors providing government staff augmentation in these areas. Applies to costs at the MDA HQ as well as its Executing Agents in the Services: Army Space and Missile Defense Command, Army PEO Space and Missile Defense, Office of Naval Research, and various Air Force laboratory and acquisition activities. Other costs include physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses at the various MDA Executing Agent locations, which at the MDA HQ are generally funded from the Management Headquarters Program Element (0901598C). Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuation on a limited number of foreign contracts.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Civilian Salaries and Support	36,684	8,946	12,278	24,318
RDT&E Articles (Quantity)	0	0	0	0

See Section A: Mission Description and Budget Item Justification

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2005
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core**

C. Other Program Funding Summary

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PE 0603175C Ballistic Missile Defense Technology	226,765	231,145	136,241	184,877	197,229	205,191	212,435	218,763	1,612,646
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PE 0603881C Ballistic Missile Defense Terminal Defense Segment	860,794	928,388	1,143,610	1,034,676	879,674	617,319	731,282	485,512	6,681,255
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PE 0603889C Ballistic Missile Defense Products	309,949	383,830	455,152	509,982	509,161	516,599	516,017	515,729	3,716,419
PE 0603890C Ballistic Missile Defense System Core	449,747	399,829	447,006	538,442	532,412	530,934	520,679	531,832	3,950,881
PE 0603891C Special Programs - MDA	0	0	349,522	482,903	826,173	1,097,252	1,015,198	1,244,072	5,015,120
PE 0605502C Small Business Innovative Research - MDA	146,030	0	0	0	0	0	0	0	146,030
PE 0901585C Pentagon Reservation	16,251	13,761	17,386	15,586	6,058	6,376	4,490	4,725	84,633
PE 0901598C Management Headquarters - MDA	92,100	113,777	99,327	95,443	98,984	98,728	81,492	81,760	761,611
Air Force – Other Procurement	0	0	2,400	1,453	11,279	386	17,710	25,709	58,937
Air Force – Operations and Maintenance	0	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
Air Force – Military Personnel	0	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
Army – Operations and Maintenance	37,600	49,597	66,974	68,246	69,809	71,472	73,325	75,230	512,253
Army National Guard – Operations and Maintenance	0	0	155	151	150	154	164	167	941
Army National Guard – Military Personnel	21,000	21,000	17,648	24,432	24,952	25,591	25,591	25,591	185,805
Navy – Operations and Maintenance	0	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PAC-3/MEADS – RDT&E	433,728	344,978	304,973	336,959	465,395	521,791	522,418	502,961	3,433,203
PAC-3/MEADS – Missile Procurement	841,964	574,972	581,924	578,579	660,584	616,020	509,032	738,679	5,101,754