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|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| Total PE Cost | 0 | 445,356 | 479,764 | 492,988 | 527,541 | 539,210 | 568,365 |
| 0101 Systems Engineering & Integration | 0 | 280,538 | 321,045 | 339,180 | 349,498 | 347,909 | 359,237 |
| 0201 Command and Control, Battle Management and Communications Core | 0 | 15,379 | 1,696 | 1,695 | 1,796 | 1,899 | 6,781 |
| 0102 Intelligence | 0 | 19,141 | 21,123 | 21,881 | 23,299 | 26,724 | 28,275 |
| 0203 Joint Warfighter Support | 0 | 242 | 0 | 0 | 0 | 0 | 0 |
| 0103 Producibility & Manufacturing Technology | 0 | 38,821 | 33,219 | 29,658 | 37,676 | 41,037 | 43,952 |
| 0105 Countermeasures/Counter-Countermeasures (CM/CCM) | 0 | 25,553 | 30,900 | 31,800 | 32,800 | 33,800 | 34,800 |
| 0202 Hercules Core | 0 | 26,276 | 0 | 0 | 0 | 0 | 0 |
| 0104 BMD Information Management Systems | 0 | 31,006 | 62,835 | 58,592 | 72,336 | 77,070 | 84,108 |
| 0602 Program-Wide Support | 0 | 8,400 | 8,946 | 10,182 | 10,136 | 10,771 | 11,212 |

*Note: In FY 2002 and FY 2003, all of the Projects in this Program Element were located in PE 0603880C, BMD System, or PE 0603882C, Midcourse Defense Segment.*

**A. Mission Description and Budget Item Justification**

Our goal is to defend the United States and our allies, friends, and deployed forces from ballistic missiles of all ranges in all phases of flight. By the beginning of FY 2005, we will put the BMDS on alert and, for the first time, we will have a capability to defeat a ballistic missile threatening the United States. In FY 2005 and the remainder of the FYDP, we will increase the breadth and depth of our defense by adding forward-deployed, networked sensors, by adding interceptors at sea and on land, and by adding layers of increasingly capable weapons and sensors. Throughout this documentation, therefore, every activity can be tied to one of our four objectives: complete, verify and test the Initial Defensive Capability; put the Ballistic Missile Defense System on alert; develop procedures and logistics to perform and sustain concurrent testing and operations; and enhance the BMDS capability.

In order to develop and deliver that integrated BMD System, MDA is employing a system-centric, capability-based approach that employs a common Ballistic Missile Defense Core. The Ballistic Missile Defense Core is comprised of a set of critical, inter-related, mutually supporting activities that span the development of the BMD System, reducing duplication and promoting employment of common, strong engineering practices. The Ballistic Missile Defense Core provides the cross-cutting BMD System level engineering necessary to develop and deliver the integrated BMD System. This engineering includes: the overarching design and specification of the BMD System Command, Control, Battle Management and Communications (C2BMC); cross-cutting efforts to improve the essential functions of detection, tracking, and discrimination in the presence of potential countermeasures; risk reduction efforts in design, development, producibility, and manufacturing; and the overall System Engineering and Integration (SE&I) to design, develop, verify, and assess the integrated BMD System. The Ballistic Missile Defense Core also includes: warfighter support to ensure consideration of military operations in the engineering design process, the intelligence and modeling and simulation support essential for BMD System engineering and assessment, and the information management necessary for the collaborative environment.

The engineering organizing principle for discussing BMDS capability is the Engagement Sequence Group (ESG). In a complex system such as the BMDS, the functions necessary to engage a target are performed by many components. ESGs were formulated as an engineering method to organize, synchronize, and maximize the system performance of the functions executed by each component and all the components combined. Using ESGs as a tool enhances functional and engineering analysis, creates manageable combinations for IDO and Block configurations, simplifies allocation of BMDS capabilities, provides a structure to assess BMDS performance, and assists the warfighter in operating the BMDS. More specifically, SE&I provides the collaborative, layered, and detailed systems engineering and integration required across the entire spectrum of BMD elements to create a war fighting capability. The SE&I scope spans the development of individual components (e.g. boosters), elements (e.g. Block 2006 Theater High Altitude Area Defense (THAAD)), BMD System segments (e.g. midcourse), and the fully integrated BMD System. SE&I provides the engineering core competency, modeling and simulation facilities, engineering development, and verification efforts needed to technically manage and field the capability-based BMD System. Based on

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specifications and plans developed by the SE&I, the C2BMC integrates the Command, Control, Battle Management, and Communications portion of the BMD System into the C2 structure of the Combatant Commanders and into that of allies and friends. As the BMD System evolves toward the overall goal of providing an integrated, layered system capable of engaging all classes and ranges of missiles in all phases of flight, the C2BMC will evolve from today's limited autonomous point defense BMD System capability into a global integrated BMD System capability. The BMD System C2BMC functionality will mature into Collaborative-Distributed Planning and increased Situational Awareness C2 capabilities that support Engagement Coordination and Integrated Fire Control BM capabilities. Throughout this evolution, The Joint Warfighter Support program ensures that warfighter operational perspectives and concerns are reflected in the development of Ballistic Missile Defense (BMD) capabilities. The Deputy for Force Structure Integration and Deployment works with the Combatant Commanders, Services and Joint Staff through seminars, wargames, and exercises to achieve this goal. Through interaction, areas of improvement in BMD capability are identified for action. This project also supports planning for emergency deployments, integration of USSTRATCOM/COMBATANT Commanders in required wargames, tabletops, experiments, and System Integrated Tests and Hardware in the Loop Tests required for enhanced use of JNIC in support of operational concept development.

Central to the overall BMD System engineering, development, and evolution is the reduction of risks and performance improvement. The Ballistic Missile Defense System Core includes BMD System-wide producibility and manufacturing risk analysis/assessments, mitigation planning and application of common producibility enhancements. Producibility and manufacturing programs are organized into the following key investment areas: Power Systems, Radiation Hardening, Manufacturing Processes and Advanced Materials, Electro-Optics/Infrared (EO/IR), Lasers, Radar and RF, Propulsion, Signal Processing and Adaptive Computing, Composite Materials & Structures, and Software. Assessment tools such as Engineering Manufacturing Readiness Levels (EMRLs), strong Systems Engineering practices and widespread interaction with the BMD System industrial base allows MDA to analyze the maturity of manufacturing processes for application to the BMD System elements. Mitigation planning consists of identifying and cooperatively funding common producibility and technology programs that benefit multiple BMD System elements. In FY05 there is a significant increase in resources applied to the Radiation Hardening Program. This increase is a result of the BMD System near-term capability improvements needed for the Block 06 BMD System, and is a part of the overall funding profile for the Radiation Hardening of electronics program. Included in risk reduction and performance improvements are those activities directly related to the potential/evolving threat environment. SE&I defines the overall capabilities-based threat environment to ensure that BMD System performance is not limited to a few specific threats, but covers a wide range of potential threats. Intelligence activities manage, maintain, analyze, assess, and share intelligence data and information related to various missile threats (traditional and non-traditional) to support risk and capability assessments and situational awareness. Countermeasures/Counter-Countermeasures (CM/CCM) activities identify, develop, and demonstrate engineering changes to improve the performance of the layered BMD System against countermeasure suites. This activity identifies and prioritizes solutions to credible countermeasures for integration into the BMD System elements. Test and Evaluation results will guide development of additional algorithms to mitigate credible threats. Engineering changes that improve capabilities against countermeasures will be incorporated through Block upgrades into the Midcourse segment (both ground and sea). 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.

Cross-cutting tools are critical to support BMD System level engineering and development across the enterprise. Models and Simulations include a comprehensive core modeling and simulation program that characterizes the BMD capability and supports credible and executable acquisition decisions with respect to the BMD System. The specific functional responsibilities are to develop and maintain the core models and simulations (i.e. phenomenology, lethality, system performance and system behavior); provide requirements management, configuration management, verification and validation (V&V) for core M&S; supports accreditation decisions for all critical BMD System and element models and simulation applications; develop and promulgate M&S policy, guidance, and best practices; ensure availability of critical BMD System program data; and develop, sustain, and modernize M&S infrastructure to include the BMD System Virtual Model, the Joint National Integration Center, the Advance Research Center, Simulation Center and other requisite computational facilities. BMD Information Management efforts improve the management of and access to data, information and knowledge throughout the MD Enterprise. The effort will assist the acquisition of Missile Defense systems by a) providing Information Management/Information Technology (IM/IT) policies, processes, and infrastructure through the MD Enterprise that allows for daily operations to be performed in an efficient, secure and affordable manner; b) creating an Enterprise Information Management System and processes using web-based technologies and establishing electronic business practices that help achieve more effective, efficient, and secure business and mission activities throughout the MD Enterprise; c) improving IT infrastructure that supports design, development, and testing of MD systems; and d) development of information architectures that identify information needs for interoperability among MD systems.

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

This program element consists of ten projects: System Engineering and Integration (SE&I) Core, C2BMC Core, Intelligence, Joint Warfighter Support, Producibility & Manufacturing Technology, Countermeasures/Counter-Countermeasures (CM/CCM), Hercules Core, Modeling and Simulation, BMD Information Technology, and Program-Wide Support.

| **B. Program Change Summary** | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Previous President's Budget (FY 2004 PB) | 0 | 483,996 | 522,458 |
| Current President's Budget (FY 2005 PB) | 0 | 445,356 | 479,764 |
| Total Adjustments | 0 | -38,640 | -42,694 |
| Congressional Specific Program Adjustments | 0 | -33,600 | 0 |
| Congressional Undistributed Adjustments | 0 | -5,040 | 0 |
| Reprogrammings | 0 | 0 | -42,694 |
| SBIR/STTR Transfer | 0 | 0 | 0 |

FY 2005 decrease of $37,694 has been realigned to PE 0603889C, BMD Products.

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| COST ($ in Thousands) | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| 0101 Systems Engineering & Integration | 0 | 280,538 | 321,045 | 339,180 | 349,498 | 347,909 | 359,237 |
| RDT&E Articles Qty | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: This Project was funded under Program Element 0603880C (BMD System), Project 1050 in FY 2002 and FY 2003.*

**A. Mission Description and Budget Item Justification**

The missile defense program focuses on the development of a single, integrated, layered Ballistic Missile Defense System (BMD System). This requires an engineering program that integrates the development of individual components and elements across all phases of a threat ballistic missile's flight to provide a capability for multiple engagements along the entire flight path. The MDA System Engineering and Integration (SE&I) mission is to define, manage, and integrate all engineering development for the BMD System. SE&I activities provide the technical expertise, tools, and facilities to develop the BMD System. The SE&I objective is to provide guidance to all MDA to develop an integrated, layered ballistic missile defense system encompassing all regions, all ranges, and all phases of flight. SE&I is the core technical effort to define, design, and verify the capability of the BMD System, and to enhance these capabilities over time through block upgrades. SE&I develops a set of time-phased technical goals and objectives to guide the design and development of evolutionary capabilities for the BMD System. This requires an engineering program that integrates the development of individual components and Elements across all phases of a threat ballistic missile's flight to provide a capability for multiple engagements along the entire flight path. To bring about the transition to a BMD System, MDA has created a Missile Defense National Team (MDNT) to create a collaborative enterprise comprised of the best and brightest minds from all engineering communities. The MDNT paradigm applies industrial structures to missile defense while complying with governmental acquisition regulations. The combination of resources of the government, industry, SETAs, FFRDCs and UARCs forms an integrated team to accomplish necessary engineering for the BMD System. In addition, because of the dynamic and complex system engineering tasks, the structure must accommodate acquisition of unique skills and experience from participating organizations and rapid deployment of task teams to solve specific problems. The defined structure allows flexibility and depth to accomplish both.

The System Engineering process is conceived in terms of multi-spiral model. The major elements (architecture engineering, integration engineering, and verification & assessment cycles) are used to identify support processes and products. They are supported by the support functions. The MDA/SE is the MDA Chief Engineer supported by functional working groups (FWG) and a system engineering advisory group (SEAG) overseeing specific, cross cutting functions. The functional working groups represent the major system engineering spirals subdivided into Design & Specification and Integration. Threat Engineering, System Analysis, Risk Engineering, and Modeling and Simulation provide matrixed support to the major spirals. Program Control and Cost & Investment Engineering provide administrative, program management and financial services to FWGs and interfaces to other MDA organizations.

The Missile Defense National Team provides an integrated and layered BMD System architecture, develops block technical definitions, develops element requirements, schedules, verification strategies and other products required to execute the BMD System program. Integration of the BMD System elements into an integrated and layered BMD System architecture is based on designs from both inside and outside of the MDNTS. Block technical definitions, analysis and assessments of BMD System Block performance and the integration of each of the BMD System blocks are developed based on Government provided capability goals (Technical Objectives & Goals Document (TOG) and Adversary Capability Document (ACD)). MDNTS products are ultimately used to guide and enhance operational BMD System capabilities in the Elements including; Ground based Midcourse Defense (GMD), Aegis Ballistic Missile Defense (Aegis BMD), Theatre High Altitude Airborne Defense (THAAD), Kinetic Intercept (KI), Airborne Laser (ABL), Space Tracking and Surveillance System (STSS), Sensors and Command and Control, Battle Management & Communications (C2BMC). The MDNTS is responsible for developing programs and concepts that will be reviewed by MDA executive management plus independent "peer review" teams through a structured review process. Review assessments evaluate whether to accelerate, modify or truncate individual elements based on technology progress, resulting block capabilities, and national and military needs. Assessment factors include changes in block capability, schedule, risk, and life cycle cost that will in turn be incorporated into future concepts, designs, and implementations. The Government provides both the overall management of the BMD System program and also participates within the MDNTS itself. The Government retains Total System Performance Responsibility (TSPR) for the BMD System. The MDNTS will operate as an integrated high performance team drawing resources from the range of community contracts available to the MDNTS. The "Alpha Engineering" process will be used to leverage the Missile Defense National Team participant capabilities. Alpha Engineering is a collaborative effort among all participants in developing Missile Defense National Team products. It includes developing contracts to support timely selection of the best product or personnel resources regardless of affiliation.

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**B. Accomplishments/Planned Program**

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Concept Engineering | | 22,007 | 25,039 |
| RDT&E Articles (Quantity) | | | |

Concept Engineering manages the future blocks providing the context for BMD System architectures, and related Technical Objectives and Goals (TOG), that supports BMD System program execution and evolution planning. Directs BMD System architecture analyses in iterative cycles (e.g. monthly), to examine new concepts such as Element P3I and particular focus areas such as sensors, weapons, C2BMC, discrimination, Counter-Countermeasures (CCM), and Space Operations. Identifies and evaluates new BMD System concepts in terms of alternative future architectures and documents the analyses and assessments in the System Evolution Plan (SEP). Manages studies to support the POM process, including the annual missile defense planning process. Incorporates emerging technologies that would enhance BMD System capabilities into the BMD System architecture. In coordination with MDA/AS, identifies new system concepts for inclusion in architecture analyses. Manages block concept development including Advance Study Notices (ASN) and Block Toolboxes, architectures and enabled engagement sequences. Conducts predictive performance assessments in coordination with organizational elements responsible for BMDS design, specification, and verification. Develops the BMDS Block data packages consisting of the architecture, toolbox, subsystem performance, operational concepts & engagement sequence groups (ESG), predictive performance & threat basis of predictions, and alternatives for future blocks. In coordination with MDA/SR and MDA/CF, initiates and conducts studies to evaluate concepts and architectures for international BMD Systems and develops strategies for cooperative research and integrating international participation and elements into the BMDS.

FY 2004 PLANNED PROGRAM:
- Define the BMDS Technical Objectives and Goals (TOG) and update as necessary to reflect changes in BMD System architecture and long term BMDS evolution objectives
- Define the BMD System Evolution Plan (SEP) and update as necessary to reflect acquisition decisions or new alternative architectures
- Manage the MDA program of studies and architectural analyses of international BMD Systems, elements and cooperative research and conduct appropriate information interchange with other nations
- Develop Technical Descriptions of Block Definition for Blocks 06 and 08
- Develop Technical Objectives for Block 10
- Refine Operational Concepts (Modes and States, Engagement Sequences)
- Refine Block definition and plan based on results from verification and assessment activities
- Support NATO BMD Study

FY 2005 PLANNED PROGRAM:
- Expand and update the definition of the BMD System Technical Objectives and Goals to reflect impacts of alternative future architecture studies that may require amendments to TOG definitions
- Expand and update the System Evolution Plan to reflect results of alternative futures architecture analyses
- Refine Operational Concepts (Modes and States, Engagement Sequences) to capture user/operator impacts on future blocks
- Incorporate findings of the BMD System Countermeasures / Counter-Countermeasures (CM/CCM) Program Rainbow Teams for alternative future architecture considerations and refined operational concepts
- Conduct U.S. & Japan bi-lateral system study

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| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Design & Specification Engineering | | 23,012 | 27,827 |
| RDT&E Articles (Quantity) | | | |

Design and Specification performs detailed BMD System engineering incorporating the identification and documentation of detailed engineering sequences that are required to support the top-level system architecture. This includes the identification of BMD System and subsystems capabilities and interface exchange requirements for both the baseline and proposed new capabilities. To support communication of the system design, the Design and Specification group develops and maintains the architectural views to support communication of the system design including information, functional, and physical architecture. The group identifies and documents the subsystem behaviors that support multiple sequences. It provides the assessment of sequences and behavior performance to include timing, communication viability, and Technical Objective and Goal metrics. Assessment and feedback is provided to Concept Engineering with respect to Block Architecture viability. Design and Specification performs the identification and initiation of modifications required to the BMD subsystems' baseline capabilities.

FY 2004 PLANNED PROGRAM:
- Update and evolve the System Capability Specification (SCS)
- Update Interface Control Specification (ICS)
- Develop and update Advance Change Notices (ACN)
- Refine BMD Core Technical Standards

FY 2005 PLANNED PROGRAM:
- Update and evolve the System Capability Specification (SCS)
- Update Interface Control Specification (ICS)
- Develop and update Advance Change Notices (ACN)
- Refine BMD Core Technical Standards

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Implementation & Software Engineering | | 15,799 | 19,266 |
| RDT&E Articles (Quantity) | | | |

Implementation & Software focuses on executing all system engineering activities necessary to implement the operational system. The Group has the primary responsibility for Software Engineering and BMD System Configuration Management. The Group will monitor progress of the elements toward achieving operational capability, with particular emphasis on successful implementation of element-to-element interfaces and items with cross element implications. The Group performs system level engineering activities to implement the Block SCS and design. Supports system design analysis that will ensure the integrated system satisfies the system objectives per BMD System Block. Provides system-level input and issue resolution support to the Operations Concept Team (OCT), including assessing operational concept options and employing technical capabilities in operational environments. Supports the capability definition and development of Block-level System Capability Specification (SCS) and Interface Control Specifications (ICSs) to ensure the design can be implemented and verified. Works with the Elements to ensure interface design implementation is consistent with interface requirements. Tracks the Elements' hardware and software development and implementation into the BMD System and identifies changes required of the elements due to new system-level requirements. Executes the MDA Software Acquisition Process Improvement Program to determine the need for and draft MDA software policy, directives, and standards; to establish metrics and means by which the performance of BMDS software products and processes can be measured, analyzed, and improved; and to track software architectures, Element and Component interfaces, software production and deployment planning, and Block integration.
The group provides support for planning/execution of Joint Service Exercises, Wargames, MDIEs, IGTs, SIFTs; and assists the BMD Analysis Teams in developing analysis/data collection plans.

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FY 2004 PLANNED PROGRAM:
- Develop the BMD System Integration Strategy (SIS) and System Implementation Plan (SIP), which integrate BMD System Elements by BMD System Block Integration Phases
- Define and evolve IDO Technical and System Integration documentation
- Update BMD System Change Process Guide (CPG)
- BMD System Configuration Management Plan (CMP)
- Define MDA Software Acquisition Plan (SWAP) and Best Practices Guidelines
- Define MDA Software Readiness Levels (SWRLs)

FY 2005 PLANNED PROGRAM:
- Evolve System Implementation Plan (SIP) Notebook
- Block 04 Technical and System Integration documentation
- Update BMD System Change Process Guide (CPG)
- Update Block 04 Software Acquisition Plan (SWAP)

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Verification & Assessment Engineering | | 15,650 | 22,244 |
| RDT&E Articles (Quantity) | | | |

Performs verification against the System Capability Specification requirements to determine the achieved performance. Performs assessments against the Technical Objectives and Goals. Reports results by iterations of the Blocks. 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), ensuring synchronization of the conditions for verification. Defines and executes Block Verification and Assessment Plans. Based on the VCRM, implement Block Verification requirements. Provides BMDS test objectives and target requirements that influence MDA/TE test planning and MDA/TC's long and short-range target planning processes, respectively, to ensure the collection of sufficient data for verification and assessment. Defines and implements verification analysis efforts to include definition of M&S requirements and intended uses as well as verification analysis outputs. Define and map Verification Capability Groups and Technical Performance Measures (TPMs) to verify data relevant to evolving Block capability; analyze data and report on TPM status integral to BMD Verification and Assessment. Report progress of the Verification and Assessment program.

FY 2004 PLANNED PROGRAM:
- Block SCS - Verification Cross Reference Matrix
- BMD System Test Objectives, including overlays on Element Test Objectives
- Maintain Target Capability Specifications (Part 1 and Part 2)
- Block Verification and Assessment Plan
- Capability Verification and Assessment Reports
- TPM and Metric Status Reports
- Verification Program Metrics and Status.

FY 2005 PLANNED PROGRAM:
- Block SCS - Verification Cross Reference Matrix
- BMD System Test Objectives, including overlays on Element Test Objectives
- Target Capability Specifications (Part 1 and Part 2)

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- Block Verification and Assessment Plan
- Capability Verification and Assessment Reports
- TPM and Metric Status Reports
- Verification Program Metrics and Status

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Threat Systems Engineering | | 19,914 | 25,608 |
| RDT&E Articles (Quantity) | | | |

Threat Systems Engineering develops, maintains, and provides configuration control of the detailed engineering offensive missile descriptions, behaviors, and presentations necessary to support BMD design, development, and testing. Conducts engineering analyses to define technologically feasible threat variations, adversary capabilities, missile characteristics, and countermeasure options. Identifies key threat parameters, establishes maximum and minimum parameters values, determines and exploits parameter relationships, assesses the impact of non-parametric factors. This includes the investigation of failure modes to examine unintended consequences of off-nominal performance of offensive missile systems. Provides MDA's adversary capability assessments and products, and lethality program information to support missile defense activities including planning, analysis, design, test, and assessment. Interfaces with other MDA elements, the MDNT, element activities and United Kingdom and Germany Missile Defense lethality programs. Provides analysis and products defining adversary space for BMD System and assures continuity with accepted and developing intelligence community threat information through coordination with MDA/SI.

The Corporate Lethality Program provides lethality information and predictions for BMD System employment and consequences management with focus on the following objectives: obtain and share data regarding the implications, including adverse effects, of employing the BMD System; assess the capability of the BMD System to negate threats across all engagement regimes and payload types by calculating weapons of mass destruction intercept effects and consequences within a consistent set of uncertainty bounds, and establish a methodology allowing warhead typing based on impact response. The Corporate Lethality Program coordinates and integrates BMD lethality policies and efforts across the BMD System elements and technology communities. This program also leverages the ongoing BMD System element lethality efforts and BMD System element/system flight test and evaluation opportunities.

FY 2004 PLANNED PROGRAM:
- Provide adversary capability definition to BMD System organizations and activities
- Prepare the Adversary Capability Document (ACD), including technical preparation, production and distribution
- Perform adversary capability engineering assessments to inform robust system design across spectrum of potential adversary capabilities.
- Provide data and analysis of various chemical agents and their simulants, including fourth-generation agents, to gather critical lethality data. Conduct experiments to investigate in-situ negation, aerodynamic breakup, and aerothermal demise of chemical payloads resulting from BMD System terminal phase intercepts.
- Initiate lethality data and analysis on chemical/biological agents at higher altitude regimes to support high-endoatmospheric and exoatmospheric BMD System elements such as THAAD, AEGIS, and GMD. Conduct simulant and live agent testing at the High Altitude Simulation Facility in Porton Down, UK. Investigate the feasibility of utilizing sounding rockets for the ejection of simulants at high altitudes.
- Initiate major efforts for obtaining actual post-engagement lethality information through "piggy-back" data collection and analysis on BMD System element and system flight test opportunities. Requires prior-year CLP coordination for the inclusion of internally threat representative targets. Instrumentation includes multi-wavelength sensors for tracking and characterization of resulting intercept debris cloud to ground.
- Provide analysis on the potential effect to ballistic missile payloads of rocket engine explosions/high-energy combustions that may result from boost phase intercepts in MUDPACK II experiments.
- Provide assessment on feasibility of methodology for kill assessment/warhead typing based on high-speed spectroscopy of hypervelocity impact flash phenomenology.
- Provide analysis and report on viscoelastic fluid morphology for simulants of persistent nerve agents.
- Provide analysis and report on submunition (both high explosive and chemical payloads) survivability to impact and aerothermal heating damage mechanisms resulting from a missile engagement.

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FY 2005 PLANNED PROGRAM:
- Update adversary capability definition to BMD System organizations and activities
- Continue to perform adversary capability engineering assessments.
- Provide data and analysis of actual post-engagement lethality information through "piggy-back" efforts on BMD System element and system flight test opportunities. Provide data for improvements or refinements of existing MDA Core Lethality Models. Continue coordination for the inclusion of internally threat representative targets on subsequent tests.
- Provide lethality data and analysis on chemical/biological agents at higher altitude regimes to support high-endoatmospheric and exoatmospheric BMD System elements such as THAAD, SMD, and GMD. Complete simulant and live agent testing at the High Altitude Simulation Facility in Porton Down, UK. Conduct experiments utilizing sounding rockets for the ejection of simulants at high altitudes.
- Provide data and analysis of various chemical agents and their simulants, including fourth-generation agents, to gather critical lethality data. Conduct experiments to investigate in-situ negation, aerodynamic breakup, and aerothermal demise of chemical payloads resulting from BMD System terminal phase intercepts.
- Provide lethality data and analysis reporting on intercept effects and consequences for various chemical and biological agents

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| System Analysis | | 39,609 | 40,151 |
| RDT&E Articles (Quantity) | | | |

Provides a common source of analysis for all Functional Working Group (NTC, NTD, NTI, NTV, NTT and NTQ) efforts and forms subgroups specializing in recurring analysis tasks. This commonality ensures consistency of quality across all National Team analysis tasks and allows wide employment of the existing knowledge and tools to enhance reuse of concepts and data. Provides mission area analysis to assess the effectiveness of alternative missile defense architectures. Assesses the long-term capability and effectiveness of alternative missile defense concepts and architectures as candidates for inclusion in the System Evolution Plan. Identifies gaps between candidate architectures and BMD System Technical Objectives and Goals. Evaluates experiment results and incorporates appropriate results in Model-Test-Model process analysis. Assesses specific BMDS program plan (roadmap) options using externally provided rough-order-of-magnitude (ROM) cost and schedule estimates. Conducts trade and system engineering studies to evaluate candidate technologies, improvements and concepts for inclusion in the toolbox. Performs analysis and capability assessments supporting SCS development. Develops and evaluates metrics relative to technical, operational, and architectural drivers, effectiveness, system and programmatic viability. Identifies and compares alternative options to mitigate or eliminate gaps. Analyzes functional and data flows within the BMDS options. Performs assessments of BMDS elements and non-BMDS assets. Calibrates the analytic tools with qualified test results prior to assessments. Performs pre-test analysis in support of test objectives definition including flight tests, ground tests, simulation, and hardware-in-the-loop experiments. Provides Quick response, high visibility assessment and system analysis support. Performs recurring Analysis/Technical Reviews and maintains a master schedule of activity and task status. Develops and maintains the Element/Component Characterization Analysis (E/CCA). Archives analysis output/reports for future use. Supports the development and maintenance of the Adversary Vignette Document.

FY 2004 PLANNED PROGRAM:
- Develop and maintain the Element/Component Characterization Analysis
- Analysis support for the System Evolution Plan
- Analysis support for System Capability Specification document
- Analysis support for Capabilities Based Verification Report/Plan
- Determine methodologies for representing metrics identified in the TOG

FY 2005 PLANNED PROGRAM:
- Develop and maintain the Element/Component Characterization Analysis
- Analysis support for the System Evolution Plan

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

- Analysis support for System Capability Specification document
- Analysis support for Capabilities Based Verification Report/Plan
- Determine methodologies for representing metrics identified in the TOG

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Risk Engineering | | 6,224 | 8,700 |
| RDT&E Articles (Quantity) | | | |

Execute the MDA risk management program. Comprehensively manage BMDS system technical performance risks including identification of handling options and mitigation tracking. Working with NTC, provides gap analysis support to the Systems Engineering process. Performs risk assessments to support the development of system level requirements necessary to transition concepts into capabilities that will meet Block objectives. Identifies and assesses gaps in capabilities between the Technical Objective and Goals and appropriate Blocks. Identifies system level technical performance risks associated with proposed advanced concepts, new technologies, counter-countermeasure concepts, and risk reduction activities; and make recommendations for Block definition, System Evolution Plan (SEP) insertion, and CCB consideration. Provide matrix support to other Functional Working Groups (FWGs) and support the development of BMD System level test objectives and technical performance measures. Facilitates BMD system level technical performance risk management and related presentations at appropriate forums and supports the development of BMD System-level technical performance risk handling options. Provide a yearly BMDS Block Technical Performance Risk Summary.

FY 2004 PLANNED PROGRAM:
- Develop and maintain the BMD System Risk Management Plan (March 2004)

FY 2005 PLANNED PROGRAM:
- Maintain the BMD SYSTEM Risk Management Plan (March 2005 and yearly thereafter in March)
- Provide a yearly BMDS Block Technical Performance Risk Summary (Starting December 2004)

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Modeling & Simulation Engineering | | 95,653 | 107,123 |
| RDT&E Articles (Quantity) | | | |

Broadly stated, the functional responsibilities are to develop and maintain, and to provide verification and validation (V&V) support for, Modeling and Simulation (M&S) tools used by MDA and designated international countries for analysis, software-in-the-loop (SWIL) testing, hardware-in-the-loop (HWIL) testing, and wargaming of the Ballistic Missile Defense System (BMDS). In greater detail, the responsibilities are to prepare, maintain, and promulgate the MDA M&S Strategy, which stipulates policy, guidance, and best practices for M&S; identify the MDA Core M&S, which are those M&S essential to the development, testing, or assessment of the BMDS; collect requirements for the Core M&S and assists in prioritizing those requirements; allocate resources for the development, maintenance, enhancement, and V&V of the Core M&S; chair the Modeling and Simulation Working Group (MSWG), a collaborative body that provides advice and guidance to users, stakeholders, and developers of BMDS M&S; plan, design, enhance, test, and conduct V&V of the Virtual Model, a simulation that supports development, testing, and assessment of the overall BMDS system; support BMDS wargames and exercises regarding the use of M&S and the collection and reuse of data; assist in identifying and implementing an architecture for hardware-in-the-loop (HWIL) testing; and develop, sustain, and modernize the MDA M&S infrastructure, including the Advanced Research Center/Simulation Center.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 PLANNED PROGRAM:
- Core M&S and Virtual Model releases
- Accreditation reports of selected models, simulations, and federations
- Technical reports

FY 2005 PLANNED PROGRAM:
- Core M&S and Virtual Model releases
- Accreditation reports of selected models, simulations, and federations
- Technical reports

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Program Cost & Investment Analysis | | 3,000 | 6,019 |
| RDT&E Articles (Quantity) | | | |

The Program Cost & Investment Analysis (NTQ) functional working group (FWG) provides program cost and investment analysis support for the primary BMD System engineering FWGs (NTC, NTD, NTI) and other FWGs as required. Services include POM, budget, and costing support, as well as investment analysis for the BMDS.

Specific functional responsibilities are as follows (ties to other FWGs in parentheses):
- Perform costing analysis, as requested by MDNTS FWGs, to support efforts such as alternative missile defense architectures (NTC), alternative defense concepts and architecture candidates in the MDA System Evolution Plan (NTC and NTD), and Advanced Study Notifications/Advanced Change Notification studies (NTI).
- Support the identification and comparison of alternatives to mitigate risks or eliminate gaps (NTC).
- Provide rough-order-of-magnitude (ROM) costs to support the assessment of specific BMDS program plan (roadmap) options (NTC and NTD).
- Provide affordability analysis in the various trade and architecture studies (NTC, NTD, and NTI).
- Perform investment analysis for the BMDS to include architecture candidates and advanced system concepts for the SEP process (NTC). Investment analyses will consist of cost benefit studies, alternative long-term investment strategies, and return-on-investment analysis.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Program Management & Control | | 39,670 | 39,068 |
| RDT&E Articles (Quantity) | | | |

Program Management and Control (NTP), provides overall program operations support to the Deputy for System Engineering and Integration in the management and control of the design, integration and verification of the BMD System. Provides support for all contract management requirements to ensure all communities of the Missile Defense National Team are enabled to perform the System Engineering and Integration processes for the BMDS. It establishes and maintains the MDNTS library to ensure all MDNTS members have instant access to accurate, timely data necessary to engineer the BMDS. NTP leads or supports all task groups responding to official inquiries about the BMDS from organizations outside the National Team-Systems. Ensures established BMD System engineering processes are updated and disseminated regularly. Establishes, and monitors information sharing processes for the NTS and coordinates with other MDA organizations to enable those processes. Provides support for budget planning, preparation and execution. Prepares and manages the POM and Budget for MDNTS. Maintains master MDNTS schedule. Manages the Task Management process to perform MDNTS work including personnel and performance reporting. Provides administrative support and all SE internal task tracking. Provide security functions required for multi-facility infrastructure, communications and daily operations.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0605502C Small Business Innovative Research - MDA | 138,791 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0901585C Pentagon Reservation | 7,432 | 14,327 | 13,884 | 12,958 | 12,850 | 13,158 | 13,476 | Continuing | Continuing |
| PE 0901598C Management Headquarters - MDA | 35,331 | 92,449 | 141,923 | 146,099 | 145,112 | 151,727 | 154,583 | Continuing | Continuing |
| PE 0603889C Ballistic Missile Defense Products | 0 | 305,309 | 418,608 | 421,049 | 445,971 | 456,339 | 469,621 | Continuing | Continuing |
| PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD | 887,616 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD | 138,922 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603175C Ballistic Missile Defense Technology | 151,217 | 225,268 | 204,320 | 199,468 | 246,291 | 286,286 | 305,365 | Continuing | Continuing |
| PE 0603869C Meads Concepts - Dem/Val | 101,754 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603879C Advanced Concepts, Evaluations and Systems | 0 | 149,993 | 256,159 | 229,512 | 232,463 | 231,583 | 224,626 | Continuing | Continuing |
| PE 0603880C Ballistic Missile Defense System Segment | 1,028,016 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603881C Ballistic Missile Defense Terminal Defense Segment | 134,093 | 874,527 | 937,748 | 993,048 | 1,117,657 | 570,000 | 410,324 | Continuing | Continuing |
| PE 0603882C Ballistic Missile Defense Midcourse Defense Segment | 3,056,035 | 3,744,066 | 4,404,335 | 3,067,800 | 3,087,147 | 1,881,298 | 1,802,257 | Continuing | Continuing |
| PE 0603883C Ballistic Missile Defense Boost Defense Segment | 705,643 | 617,270 | 492,614 | 555,667 | 611,736 | 473,602 | 455,961 | Continuing | Continuing |
| PE 0603884C Ballistic Missile Defense Sensors | 327,013 | 425,421 | 591,957 | 790,265 | 1,453,679 | 1,122,189 | 1,232,893 | Continuing | Continuing |
| PE 0603886C Ballistic Missile Defense System Interceptors | 0 | 117,719 | 511,262 | 1,118,599 | 1,717,480 | 2,196,531 | 2,449,322 | Continuing | Continuing |
| PE 0603888C Ballistic Missile Defense Test and Targets | 0 | 635,782 | 716,427 | 673,476 | 656,152 | 654,015 | 688,119 | Continuing | Continuing |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 implement the MDA's capability-based acquisition strategy that emphasizes testing, spiral development, & evolutionary acquisition through the use of two-year capability blocks.

The transition to a BMD System is performed by the Missile Defense National Team System (MDNTS) and the Missile Defense National Team Battle Management/Command and Control (MDNTB). The MDNTS is composed of Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), System Engineering and Technical Assistance (SETA), and industry contractors. This combination of resources forms an integrated team to accomplish necessary engineering for the BMD System. The MDA/SE is the MDA Chief Engineer supported by functional working 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 MDNTS to ensure successful development of the BMD System through system definition & analyses, capability allocation, block integration, and verification. The MDNT is a new paradigm, applying industrial structures to missile defense while complying with governmental acquisition regulations.

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | | | | | | |

**Remarks**

**II. Support Costs Cost ( $ in Thousands )**

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Concept Engineering** | | | | | | | | | | |
| ISEG | | Vanguard/ VA | | 1,000 | 3Q | 1,100 | | CONT. | 2,100 | TBD |
| SEC-Industry | CPAF | Boeing/ VA | | 12,230 | 2Q | 14,048 | | CONT. | 26,278 | TBD |
| SEC-SETA | CPFF | Sparta/ VA | | 605 | 1Q | | | CONT. | 605 | TBD |
| SEC-SETA | CPAF | Sparta/ VA | | 2,452 | 2Q | 2,805 | 3Q | CONT. | 5,257 | TBD |
| SEC-SETA | CPFF | CSC/ VA | | 617 | 1Q | | | CONT. | 617 | TBD |
| SEC-SETA | CPAF | CSC/ VA | | 2,703 | 2Q | 3,018 | 3Q | CONT. | 5,721 | TBD |
| SEC | Various | Various | | | | 1,500 | | CONT. | 1,500 | TBD |
| **Design & Specification Engineering** | | | | | | | | | | |
| SED-Industry | CPAF | Boeing/ VA | | 17,820 | 2Q | 19,300 | | CONT. | 37,120 | TBD |
| SED-SETA | CPFF | Sparta/ VA | | 385 | 1Q | | | CONT. | 385 | TBD |
| SED-SETA | CPAF | Sparta/ VA | | 1,560 | 2Q | 1,935 | 3Q | CONT. | 3,495 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | | | | | | | | | Date: February 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| SED-SETA | CPFF | CSC/ VA | | 353 | 1Q | | | CONT. | 353 | TBD |
| SED-SETA | CPAF | CSC/ VA | | 1,544 | 2Q | 1,847 | 3Q | CONT. | 3,391 | TBD |
| SED | Various | Various | | | | 3,000 | | CONT. | 3,000 | TBD |
| **Implementation & Software Engineering** | | | | | | | | | | |
| SEI-Industry | CPAF | Boeing/ VA | | 9,436 | 2Q | 10,635 | | CONT. | 20,071 | TBD |
| SEI-SETA | CPFF | Sparta/ VA | | 330 | 1Q | | | CONT. | 330 | TBD |
| SEI-SETA | CPAF | Sparta/ VA | | 1,572 | 2Q | 1,600 | 3Q | CONT. | 3,172 | TBD |
| SEI-SETA | CPFF | CSC/ VA | | 441 | 1Q | | | CONT. | 441 | TBD |
| SEI-SETA | CPAF | CSC/ VA | | 2,166 | 2Q | 2,689 | 3Q | CONT. | 4,855 | TBD |
| SEI | MIPR | Spawar/ CA | | 300 | 1/3Q | 700 | 1/3Q | CONT. | 1,000 | TBD |
| SEI | | SMDC/ AL | | 450 | | 800 | | CONT. | 1,250 | TBD |
| SEI | Various | Various | | 204 | 2/3Q | 1,300 | 2/3Q | CONT. | 1,504 | TBD |
| **Verification & Assessment Engineering** | | | | | | | | | | |
| SEV-Industry | CPAF | Boeing/ VA | | 4,891 | 2Q | 6,717 | | CONT. | 11,608 | TBD |
| SEV-SETA | CPFF | Sparta/ VA | | 330 | 1Q | | | CONT. | 330 | TBD |
| SEV-SETA | CPAF | Sparta/ VA | | 1,337 | 2Q | 2,560 | 3Q | CONT. | 3,897 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | | | | | | | | | Date: February 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| SEV-SETA | CPFF | CSC/ VA | | 705 | 1Q | | | CONT. | 705 | TBD |
| SEV-SETA | CPAF | CSC/ VA | | 3,087 | 2Q | 4,350 | 3Q | CONT. | 7,437 | TBD |
| SEV-SETA | MIPR | NSWC/Crane/ IN | | 1,000 | 1Q | 1,100 | | CONT. | 2,100 | TBD |
| SEV | | JNIC/ CO | | 1,000 | 1Q | 1,100 | | CONT. | 2,100 | TBD |
| SEV | Various | Various | | 2,700 | 2/3Q | 5,175 | | CONT. | 7,875 | TBD |
| **Threat Systems Engineering** | | | | | | | | | | |
| SET-Industry | CPAF | Boeing/ AL | | 1,049 | 2Q | 1,049 | | CONT. | 2,098 | TBD |
| SET-SETA | CPAF | Sparta/ VA | | 150 | 2Q | 3,789 | 3Q | CONT. | 3,939 | TBD |
| SET-SETA | CPAF | CSC/ VA | | 300 | 2Q | 1,802 | 3Q | CONT. | 2,102 | TBD |
| SET | MIPR | Battelle/ OH | | 3,050 | 1/3Q | 3,100 | 1/3Q | CONT. | 6,150 | TBD |
| SET | MIPR | NSWC/DD/ VA | | 2,665 | 1/3Q | 2,700 | 1/3Q | CONT. | 5,365 | TBD |
| SET | MIPR | SBCOM/ MD | | 75 | 1Q | 100 | 1Q | CONT. | 175 | TBD |
| SET | | UKMOD/ UK | | 3,550 | 2/3Q | 3,800 | 1/3Q | CONT. | 7,350 | TBD |
| SET | | SMDC/ AL | | 4,975 | 1/3Q | 5,000 | 1/3Q | CONT. | 9,975 | TBD |
| SET | | Air Force/ Various | | 1,700 | 1/3Q | 1,700 | 1/3Q | CONT. | 3,400 | TBD |
| **System Analysis** | | | | | | | | | | |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | | | | | | | | | Date: February 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| SEZ-Industry | CPAF | Boeing/ VA | | 16,424 | 2Q | 18,325 | | CONT. | 34,749 | TBD |
| SEZ-SETA | CPFF | Sparta/ VA | | 3,355 | 1Q | | | CONT. | 3,355 | TBD |
| SEZ-SETA | CPAF | Sparta/ VA | | 13,560 | 2Q | 14,900 | 3Q | CONT. | 28,460 | TBD |
| SEZ-SETA | CPFF | CSC/ VA | | 881 | 1Q | | | CONT. | 881 | TBD |
| SEZ-SETA | CPAF | CSC/ VA | | 3,589 | 2Q | 5,000 | 3Q | CONT. | 8,589 | TBD |
| **Risk Engineering** | | | | | | | | | | |
| SEY-Industry | CPAF | Boeing/ VA | | 4,192 | 2Q | 4,709 | | CONT. | 8,901 | TBD |
| SEY-SETA | CPFF | Sparta/ VA | | 165 | 1Q | | | CONT. | 165 | TBD |
| SEY-SETA | CPAF | Sparta/ VA | | 669 | 2Q | 919 | 3Q | CONT. | 1,588 | TBD |
| SEY-SETA | CPFF | CSC/ VA | | 118 | 1Q | | | CONT. | 118 | TBD |
| SEY-SETA | CPAF | CSC/ VA | | 480 | 2Q | 730 | 3Q | CONT. | 1,210 | TBD |
| SEY | Various | Various | | | | 1,700 | | CONT. | 1,700 | TBD |
| **Modeling & Simulation Engineering** | | | | | | | | | | |
| SEJ-Industry | CPAF | Boeing/ VA | | 7,800 | 2Q | 8,260 | | CONT. | 16,060 | TBD |
| SEJ-SETA | CPFF | Sparta/ VA | | 400 | 1Q | | | CONT. | 400 | TBD |
| SEJ-SETA | CPAF | Sparta/ VA | | 1,960 | 2Q | 2,200 | 3Q | CONT. | 4,160 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | | | | | | | | | Date: February 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| SEJ-SETA | FFP | Sparta/ VA | | 875 | 1/3Q | | | CONT. | 875 | TBD |
| SEJ-SETA | FFP | Booz Allen & Hamilton/ Va | | 6,827 | 1/3Q | 6,950 | | CONT. | 13,777 | TBD |
| SEJ-SETA | CPAF | Photon Research Associates/ VA | | 3,650 | 1/3Q | | | CONT. | 3,650 | TBD |
| SEJ | | SMDC/ AL | | 9,538 | 1/3Q | 12,000 | | CONT. | 21,538 | TBD |
| SEJ-Advanced Research Center | | SMDC/ AL | | 12,500 | 1/3Q | 15,000 | | CONT. | 27,500 | TBD |
| SEJ-Simulation Center | | SMDC/ AL | | 3,000 | 1/3Q | 3,000 | | CONT. | 6,000 | TBD |
| SEJ | | JNIC/ CO | | 20,773 | 1/3Q | 23,600 | | CONT. | 44,373 | TBD |
| SEJ | | Air Force | | 3,183 | 1/3Q | 3,985 | | CONT. | 7,168 | TBD |
| SEJ | | Navy/ VA | | 1,454 | 1/3Q | 2,375 | | CONT. | 3,829 | TBD |
| SEJ | | Navy (B)/ VA | | 2,995 | 1/3Q | 3,500 | | CONT. | 6,495 | TBD |
| SEJ | | PEOAMD/ AL | | 14,961 | 1/3Q | 15,200 | | CONT. | 30,161 | TBD |
| SEJ | Various | Various | | 4,837 | 1/3Q | 9,500 | | CONT. | 14,337 | TBD |
| **Program Cost & Investment Analysis** | | | | | | | | | | |
| SEQ-Industry | CPAF | Boeing/ VA | | 1,966 | 2Q | 2,435 | | CONT. | 4,401 | TBD |
| SEQ-SETA | CPFF | Sparta/ VA | | 83 | 1Q | | | CONT. | 83 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | | | | | | | | Date: February 2004 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| SEQ-SETA | CPAF | Sparta/ VA | | 334 | 2Q | 656 | 3Q | CONT. | 990 | TBD |
| SEQ-SETA | CPFF | CSC/ VA | | 59 | 1Q | | | CONT. | 59 | TBD |
| SEQ-SETA | CPAF | CSC/ VA | | 258 | 2Q | 507 | 3Q | CONT. | 765 | TBD |
| SEQ | Various | Various | | | | 1,500 | | CONT. | 1,500 | TBD |
| **Program Management & Control** | | | | | | | | | | |
| Subtotal Support Costs | | | 0 | 229,618 | | 267,270 | | 0 | 496888 | |
| **Remarks** | | | | | | | | | | |
| **III. Test and Evaluation Cost ( $ in Thousands )** | | | | | | | | | | |
| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| Subtotal Test and Evaluation | | | | | | | | | | |
| **Remarks** | | | | | | | | | | |
| **IV. Management Services Cost ( $ in Thousands )** | | | | | | | | | | |
| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| **Concept Engineering** | | | | | | | | | | |
| SEC-FFRDC/UARC/DoE Labs | FFRDC | Various | | 2,400 | 1/3Q | 2,568 | 1/3Q | CONT. | 4,968 | TBD |
| **Design & Specification Engineering** | | | | | | | | | | |
| SED-FFRDC/UARC/DoE Labs | FFRDC | Various | | 1,350 | 1/3Q | 1,745 | 1/3Q | CONT. | 3,095 | TBD |
| **Implementation & Software Engineering** | | | | | | | | | | |
| SEI-FFRDC/UARC/DoE Labs | FFRDC | Various | | 900 | 1/3Q | 1,542 | 1/3Q | CONT. | 2,442 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Verification & Assessment Engineering** | | | | | | | | | | |
| SEV-FFRDC/UARC/DoE Labs | FFRDC | Various | | 600 | 1/3Q | 1,242 | 1/3Q | CONT. | 1,842 | TBD |
| **Threat Systems Engineering** | | | | | | | | | | |
| SET-FFRDC/UARC/DoE Labs | FFRDC | Various | | 2,400 | 1/3Q | 2,568 | 1/3Q | CONT. | 4,968 | TBD |
| **System Analysis** | | | | | | | | | | |
| SEZ-FFRDC/UARC/DoE Labs | FFRDC | Various | | 1,800 | 1/3Q | 1,926 | 1/3Q | CONT. | 3,726 | TBD |
| **Risk Engineering** | | | | | | | | | | |
| SEY-FFRDC/UARC/DoE Labs | FFRDC | Various | | 600 | 1/3Q | 642 | 1/3Q | CONT. | 1,242 | TBD |
| **Modeling & Simulation Engineering** | | | | | | | | | | |
| SEJ-FFRDC/UARC/DoE Labs | FFRDC | Various | | 900 | 1/3Q | 1,553 | 1/3Q | CONT. | 2,453 | TBD |
| **Program Cost & Investment Analysis** | | | | | | | | | | |
| SEQ-FFRDC/UARC/DoE Labs | FFRDC | Various | | 300 | 1/3Q | 921 | 1/3Q | CONT. | 1,221 | TBD |
| **Program Management & Control** | | | | | | | | | | |
| SEP-Industry | CPAF | Boeing/ VA | | 25,922 | | 21,700 | 1/3Q | CONT. | 47,622 | TBD |
| SEP-SETA | CPAF | Sparta/ VA | | 2,086 | 2Q | 5,366 | 3Q | CONT. | 7,452 | TBD |
| SEP-SETA | CPAF | CSC/ VA | | 1,935 | 2Q | 3,139 | 3Q | CONT. | 5,074 | TBD |
| SEP-FFRDC/UARC/DoE Labs | FFRDC | Various | | 1,950 | 1/3Q | 2,550 | 3Q | CONT. | 4,500 | TBD |
| Gov`t Personnel | | | | 7,177 | 2Q | 5,715 | 2Q | CONT. | 12,892 | TBD |
| Travel | | | | 600 | 2Q | 598 | 2Q | CONT. | 1,198 | TBD |
| Subtotal Management Services | | | 0 | 50,920 | | 53,775 | | 0 | 104695 | |
| **Remarks** | | | | | | | | | | |
| Project Total Cost | | | 0 | 280,538 | | 321,045 | | | 601,583 | |
| **Remarks** | | | | | | | | | | |

| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| 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 | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| **Milestones** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IDO Design Review | | | | | | △ | | | | | | | | | | | | | | | | | | | | | | |
| IDO Readiness Review | | | | | | | | △ | | | | | | | | | | | | | | | | | | | | |
| IDC/Block 04 Interface Control Specifications | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | |
| System Evolution Plan/Updates | | | | | | △ | | | △ | △ | | | △ | △ | | | △ | △ | | | △ | △ | | | △ | △ | | |
| Technical Objectives & Goals / Updates | | | | | | | △ | | | | △ | | | | △ | | | | △ | | | | △ | | | | △ | |
| Capability Verification and Assessment Report | | | | | | | | | △ | | △ | | △ | | △ | | △ | | △ | | △ | | △ | | △ | | △ | |
| Adversary Capability Document/updates | | | | | | △ | | | △ | | | | | | | | | | | | | | | | | | | |
| Capability Verification and Assessment Plan | | | | | | | | | △ | | | | △ | | | △ | | | | △ | | | | △ | | | | △ |
| Capability Verification and Assessment Report | | | | | | | △ | | | | | | | | | | | | | | | | | | | | | |
| IDO Capability & Assessment Report | | | | | | | | △ | | | | | | | | | | | | | | | | | | | | |
| **BLOCK 2004** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Block 04 Design Review | | | | | | | △ | | | | | | | | | | | | | | | | | | | | | |
| Block 04 System Integration Plan | | | | | | | △ | | | | | | | | | | | | | | | | | | | | | |
| **BLOCK 2006** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Block 06 System Capability Specifications/updates | | | | | ▲ | | △ | | | | | | | | | | | | | | | | | | | | | |
| Target Requirements Block 06 - Part 1 | | | | | | △ | | | | | | | | | | | | | | | | | | | | | | |

| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| 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 | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| **BLOCK 2006** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Target Requirements Block 06 - Part 2 | | | | | | | | Δ | | Δ | | | | | | | | | | | | | | | | | | |
| Block 06 Design Review | | | | | | | | Δ | | | | | | | | | | | | | | | | | | | | |
| Block 06 Readiness Review | | | | | | | | | | | | Δ | | | | | | | | | | | | | | | | |
| Block 06 System Integration Plan | | | | | | | | Δ | | | | | | | | | | | | | | | | | | | | |
| **BLOCK 2008** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Block 08 Design Review | | | | | | | | | | | Δ | | | | | | | | | | | | | | | | | |
| Block 08 Integration Review Board | | | | | | | | Δ | | | | | | | | | | | | | | | | | | | | |
| Block 08 Interface Control Specifications | | | | | | | | | | | | Δ | | | | | | | | | | | | | | | | |
| Block 08 System Capability Specification/updates | | | | | | | | Δ | | | Δ | | | | | | | | | | | | | | | | | |
| Block 08 Capability Review | | | | | | | | | | | | | Δ | | | | | | | | | | | | | | | |
| Target Requirements Block 08 - Part 1 | | | | | | | | | Δ | | | | | | | | | | | | | | | | | | | |
| **Block 2010** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Block 10 SCS/updates | | | | | | | | | | | | | Δ | | | | | | | | | | | | | | | |
| **Software** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Block 04 Software Acquisition Program | | | | | | | Δ | | | | | | | | | | | | | | | | | | | | | |
| Virtual Model/updates | | | | | | | | Δ | Δ | | | Δ | Δ | | | Δ | Δ | | | Δ | Δ | | | Δ | Δ | | | Δ |

| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| **Milestones** | | | | | | | |
| IDO Design Review | | 2Q | | | | | |
| IDO Readiness Review | | 4Q | | | | | |
| System Evolution Plan Outlines | | 2Q,4Q | 2Q,4Q | 2Q,4Q | 2Q,4Q | 2Q,4Q | 2Q,4Q |
| IDC/Block 04 Interface Control Specifications | | 1Q | | | | | |
| System Evolution Plan/Updates | | 2Q | 1Q,2Q | 1Q,2Q | 1Q,2Q | 1Q,2Q | 1Q,2Q |
| Assess operational risks | | | | 2Q | 2Q | 2Q | 2Q |
| Capability Verificaction & Assessment Plan | | 4Q | 4Q | 4Q | 4Q | 4Q | 4Q |
| IDO Adversary Data Package/updates | | 1Q,2Q | | | | | |
| Technical Objectives & Goals / Updates | | 3Q | 3Q | 3Q | 3Q | 3Q | 3Q |
| Block Definition & Architecture Tech. Descriptions | | 2Q | | 2Q | | 2Q | |
| Capability Verification and Assessment Report | | | 1Q,3Q | 1Q,3Q | 1Q,3Q | 1Q,3Q | 1Q,3Q |
| Adversary Capability Document/updates | | 2Q | 1Q | | | | |
| Capability Verification and Assessment Plan | | | 1Q | 1Q,4Q | 4Q | 4Q | 4Q |
| Capability Verification and Assessment Report | | 3Q | | | | | |
| IDO Capability & Assessment Report | | 4Q | | | | | |
| **BLOCK 2004** | | | | | | | |
| Block 04 Adversary Data Package/updates | | 3Q,4Q | | | | | |
| Block 04 Design Review | | 3Q | | | | | |
| Block 04 System Integration Plan | | 3Q | | | | | |
| Block 04 System Integration Strategy/updates | | 3Q | | | | | |
| **BLOCK 2006** | | | | | | | |
| Block 06 System Capability Specifications/updates | | 1Q,3Q | | | | | |
| Target Requirements Block 06 - Part 1 | | 2Q | | | | | |
| Target Requirements Block 06 - Part 2 | | 4Q | 2Q | | | | |
| Block 06 Target Specs | | 4Q | | | | | |
| Block 06 Design Review | | 4Q | | | | | |
| Block 06 Readiness Review | | | 4Q | | | | |
| Block 06 System Integration Strategy/updates | | 4Q | | | | | |
| Block 06 System Integration Plan | | 4Q | | | | | |
| Block 06 TPM & Metric Status | | 4Q | | | | | |

| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| Block 06 Verification Cross Reference Matrix | | 2Q,3Q,4Q | | | | | |
| Block 06 Adversary Data Package/updates | | | 1Q,2Q | | | | |
| Block 06 Interface Control Specification | | 4Q | | | | | |
| **BLOCK 2008** | | | | | | | |
| Block 08 Design Review | | | 3Q | | | | |
| Block 08 Integration Review Board | | 4Q | | | | | |
| Block 08 Interface Control Specifications | | | 4Q | | | | |
| Block 08 System Capability Specification/updates | | 4Q,4Q | 3Q | | | | |
| Block 08 Capability Review | | | | 1Q | | | |
| Block 08 Target Specs | | | 4Q | | | | |
| Target Requirements Block 08 - Part 1 | | | 1Q | | | | |
| Block 08 System Integration Strategy/updates | | | 2Q,3Q | | | | |
| Block 08 TPM & Metric Status | | | | 1Q | | | |
| Block 08 Verification Cross Reference Matrix | | 4Q | 4Q | | | | |
| Block 08 Adversary Data Package/updates | | | 3Q,4Q | | | | |
| **Block 2010** | | | | | | | |
| Block 10 Adversary Data Package/updates | | | | 1Q,2Q | | | |
| Block 10 SCS/updates | | | | 1Q | | | |
| **Ground Tests** | | | | | | | |
| MUDPACK II | | | 3Q | | | | |
| **Studies & Analyses** | | | | | | | |
| Review future design for Block & BMDS Elements | | 2Q | | | | | |
| Alternatives for BMDS Block architecture | | 2Q | | | | | |
| Conceptual design for Block & BMDS Element | | 2Q | | | | | |
| Review multiple candidates for Block architecture | | 2Q | | | | | |
| **Software** | | | | | | | |
| Block 04 Software Acquisition Program | | 3Q | | | | | |
| Virtual Model/updates | | 4Q | 1Q,4Q | 1Q,4Q | 1Q,4Q | 1Q,4Q | 1Q,4Q |
| **Contractual Activities& Events** | | | | | | | |
| MDNTS(I) Phase 3 Contract Award | | 2Q | | | | | |
| MDNTS(I) Phase 4 Contract Award | | | | 1Q | | | |

| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| MDNTS(I) Phase 5 Contract Award | | | | | | 1Q | |
| **Other** | | | | | | | |
| BMDS Technical Risk Summary | | | 1Q | | | | |
| Risk Mgt Plan Update | | 3Q | | | | | |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| 0201 Command and Control, Battle Management and Communications Core | 0 | 15,379 | 1,696 | 1,695 | 1,796 | 1,899 | 6,781 |
| RDT&E Articles Qty | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: This Project was funded under PE 0603880C (BMD System), Projects 1010 and 1020, for FY 2002 and FY 2003.*

*Starting FY 2005, this project is captured under PE 0603889C (BMD Products) Projects 0701, 0801 and 0901.*

**A. Mission Description and Budget Item Justification**

The BMDS Command, Control, Battle Management and Communications (C2BMC) element is the integrating function across all BMDS elements. It is also the element that integrates the BMDS into the C2 structure of the Combatant Commanders and into that of allies and friends. C2BMC will evolve from today's limited autonomous defense BMDS capability into a global integrated BMDS capability. The BMDS C2BMC functionality will mature into Collaborative Distributed Planning and increased Situational Awareness C2 capabilities that support Engagement Coordination and Integrated Fire Control BM capabilities.

MDA established a Missile Defense National Team for Command, Control, Battle Management and Communications (MDNTB) to deliver an integrated BMDS C2BMC Element. This effort requires a collaborative enterprise comprised of the best and most experienced minds of Industry and Government. Beginning in FY 2004 this project provides funding in support of Federally Funded Research and Development Center (FFRDC), and University Affiliated Research Center (UARC) providers. The concept of operations for the MDNTB will continue to be is as follows: the Government continues to provide the overall management of the BMDS program and participates within the MDNTB; and the MDNTB is responsible for the C2BMC Element engineering, design, specifications development, development, integration and testing, installation and activation, and logistics and maintenance of the BMDS C2BMC Element capability.

**B. Accomplishments/Planned Program**

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Missile Defense National Team for C2BMC - Industry | | 13,160 | |
| RDT&E Articles (Quantity) | | | |

The MDNTB(I) core reflects infrastructure costs, cross-Block and cross-IPT activities.

- Infrastructure costs include: facilities lease, equipment and recurring purchases expenses; property administration; security management and labor; material; I/T support, contract I/T, HW and SW maintenance; telecommunications expenses including contract telecommunications, HW circuits, SW and SW Maintenance.

- Cross-Block and Cross-IPT activities are captured in the Program Control IPT that manages the business functions of the MDNTB(I). These activities include: finance, program management, ODC, travel, subcontract management, development of the Integrated Management Plan and Integrated Master Schedule, Configuration Management, information security, and others.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Government Personnel | | 1,679 | 1,696 |
| RDT&E Articles (Quantity) | | | |

MDA C2BMC Directorate government civilian salaries.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| SETA Support | | 295 | |
| RDT&E Articles (Quantity) | | | |

Represents Scientific Engineering Technical Assistance (SETA) HQ allocation

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| FEDERALLY FUNDED RESEARCH DEVELOPMENT CENTERS (FFRDC) | | 245 | |
| RDT&E Articles (Quantity) | | | |

**C. Other Program Funding Summary**

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0603175C Ballistic Missile Defense Technology | 151,217 | 225,268 | 204,320 | 199,468 | 246,291 | 286,286 | 305,365 | Continuing | Continuing |
| PE 0603869C Meads Concepts - Dem/Val | 101,754 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603879C Advanced Concepts, Evaluations and Systems | 0 | 149,993 | 256,159 | 229,512 | 232,463 | 231,583 | 224,626 | Continuing | Continuing |
| PE 0603880C Ballistic Missile Defense System Segment | 1,028,016 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603881C Ballistic Missile Defense Terminal Defense Segment | 134,093 | 874,527 | 937,748 | 993,048 | 1,117,657 | 570,000 | 410,324 | Continuing | Continuing |
| PE 0603882C Ballistic Missile Defense Midcourse Defense Segment | 3,056,035 | 3,744,066 | 4,404,335 | 3,067,800 | 3,087,147 | 1,881,298 | 1,802,257 | Continuing | Continuing |
| PE 0603883C Ballistic Missile Defense Boost Defense Segment | 705,643 | 617,270 | 492,614 | 555,667 | 611,736 | 473,602 | 455,961 | Continuing | Continuing |
| PE 0603884C Ballistic Missile Defense Sensors | 327,013 | 425,421 | 591,957 | 790,265 | 1,453,679 | 1,122,189 | 1,232,893 | Continuing | Continuing |
| PE 0603886C Ballistic Missile Defense System Interceptors | 0 | 117,719 | 511,262 | 1,118,599 | 1,717,480 | 2,196,531 | 2,449,322 | Continuing | Continuing |
| PE 0603888C Ballistic Missile Defense Test and Targets | 0 | 635,782 | 716,427 | 673,476 | 656,152 | 654,015 | 688,119 | Continuing | Continuing |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD | 887,616 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD | 138,922 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0605502C Small Business Innovative Research - MDA | 138,791 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0901585C Pentagon Reservation | 7,432 | 14,327 | 13,884 | 12,958 | 12,850 | 13,158 | 13,476 | Continuing | Continuing |
| PE 0901598C Management Headquarters - MDA | 35,331 | 92,449 | 141,923 | 146,099 | 145,112 | 151,727 | 154,583 | Continuing | Continuing |
| PE 0603889C Ballistic Missile Defense Products | 0 | 305,309 | 418,608 | 421,049 | 445,971 | 456,339 | 469,621 | Continuing | Continuing |

**D. Acquisition Strategy**

C2BMC will follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks. The Department has restructured the missile defense acquisition strategy into a multi-path approach to assure that the most effective missile defense is available at the earliest possible time. The strategy is to build the initial C2BMC Element of the BMDS Test Bed NLT 4th Quarter FY 2004 as an early BMDS Test Bed and deliver capability block upgrades as early as practical. An integrated team named the Missile Defense National Team for C2BMC (MDNTB) was formed to accomplish the design and specifications development; software development, integration and testing; installation and activation; and logistics and maintenance of the C2BMC Element for the BMD System. The MDNTB is composed of Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), System Engineering and Technical Assistance (SETA), and industry contractors. An Other Transactions Agreement was awarded to Lockheed Martin Mission Systems as the prime contractor for the industry team (MDNTB(I)).

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Missile Defense National Team for C2BMC - Industry** | | | | | | | | | | |
| C2BMC Element | SS/CPAF | LMMS/ Crystal City, VA | | 13,160 | 1Q | | | | 13,160 | |
| **Government Personnel** | | | | | | | | | | |
| C2BMC Element | | MDA HQ/ Arlington, VA | | 1,679 | 1/4Q | 1,696 | 1/4Q | | 3,375 | |
| **FEDERALLY FUNDED RESEARCH DEVELOPMENT CENTERS (FFRDC)** | | | | | | | | | | |
| CBMC Element | SS/CPAF | MITRE,IDA,ORL/ Washington, DC | | 245 | 1Q | | | | 245 | |
| Subtotal Product Development | | | 0 | 15,084 | | 1,696 | | 0 | 16780 | |

**Remarks**

**II. Support Costs Cost ( $ in Thousands )**

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **SETA Support** | | | | | | | | | | |
| C2BMC Element | SS/CPFF | Sparta/ MDA HQ, Arlington, VA | | 295 | 1Q | | | | 295 | |
| Subtotal Support Costs | | | 0 | 295 | | 0 | | 0 | 295 | |

**Remarks**

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Test and Evaluation | | | | | | | | | | |

**Remarks**

**IV. Management Services Cost ( $ in Thousands )**

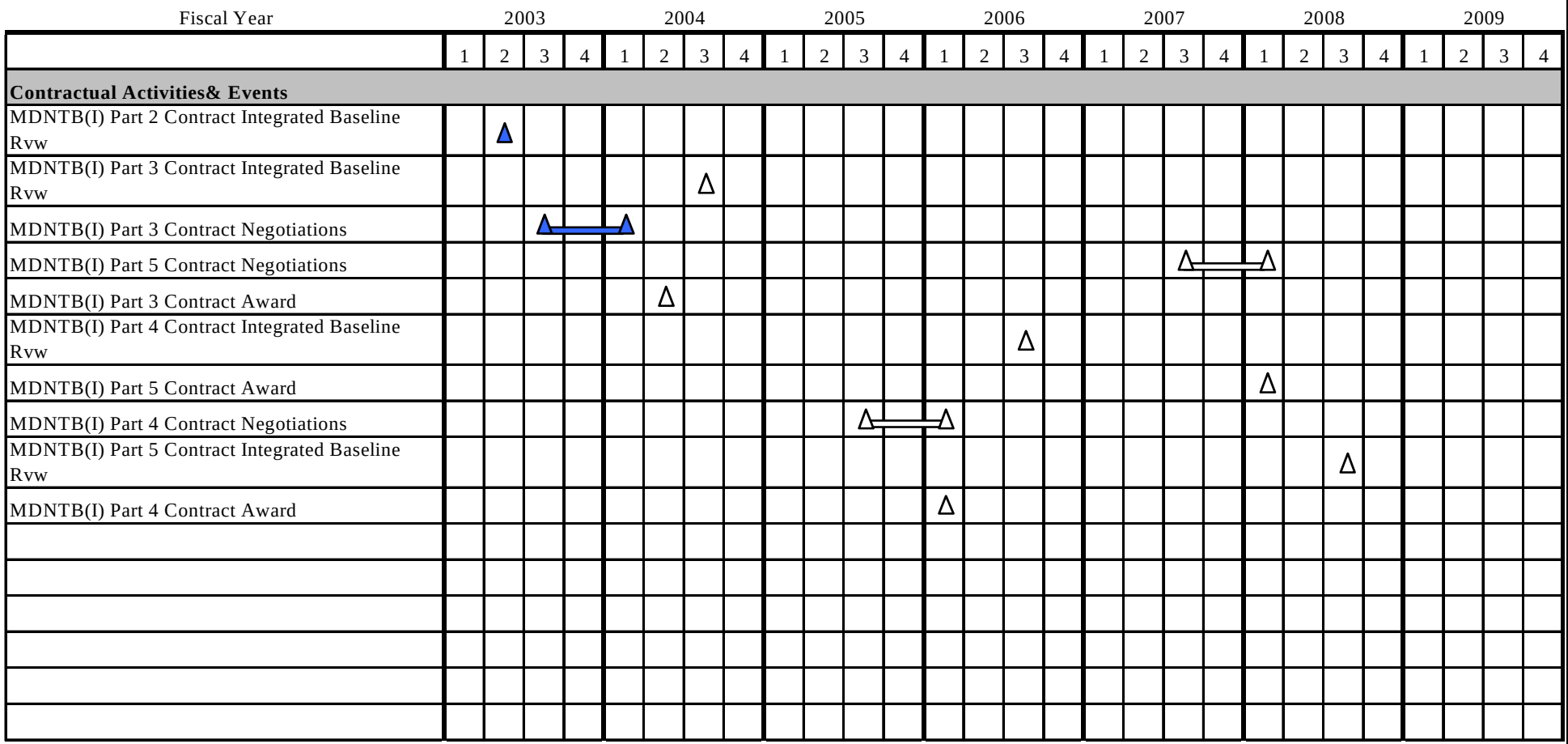
| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Management Services | | | | | | | | | | |

**Remarks**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Project Total Cost | | | 0 | 15,379 | | 1,696 | | | 17,075 | |

**Remarks**

| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |



| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| **Contractual Activities& Events** | | | | | | | |
| MDNTB(I) Part 2 Contract Integrated Baseline Rvw | 2Q | | | | | | |
| MDNTB(I) Part 3 Contract Integrated Baseline Rvw | | 3Q | | | | | |
| MDNTB(I) Part 3 Contract Negotiations | 3Q-4Q | 1Q | | | | | |
| MDNTB(I) Part 5 Contract Negotiations | | | | | 3Q-4Q | 1Q | |
| MDNTB(I) Part 3 Contract Award | | 2Q | | | | | |
| MDNTB(I) Part 4 Contract Integrated Baseline Rvw | | | | 3Q | | | |
| MDNTB(I) Part 5 Contract Award | | | | | | 1Q | |
| MDNTB(I) Part 4 Contract Negotiations | | | 3Q-4Q | 1Q | | | |
| MDNTB(I) Part 5 Contract Integrated Baseline Rvw | | | | | | 3Q | |
| MDNTB(I) Part 4 Contract Award | | | | 1Q | | | |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| 0102 Intelligence | 0 | 19,141 | 21,123 | 21,881 | 23,299 | 26,724 | 28,275 |
| RDT&E Articles Qty | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: In FY 2003 and prior, this Project was funded under Program Element (PE) 0603880C (BMD System).*

**A. Mission Description and Budget Item Justification**

As part of the Ballistic Missile Defense System (BMDS) Core Program Element, the Intelligence Project fulfills a critical role by providing current and projected intelligence information (detailing threat capabilities) to the many groups responsible for making the BMDS capability a reality. This threat information is invaluable to ensuring the BMDS successfully defeats threat capabilities. Without sufficient threat information, it is impossible to know which defense capabilities should be development priorities in the BMDS. But with sufficient threat information, it is possible to better assess the importance of certain defensive capabilities and thereby make informed decisions regarding uses of limited resources throughout the missile defense development community.

Critical to the overall BMDS engineering, development, and evolution is the use of threat information to introduce characteristics and types of threat information into the engineering and development process. Consideration of threat information will help minimize risks and improve system performance by enabling BMDS-wide system engineers to better understand threat capabilities.

This Project is aimed at studying and exploiting threat relevant information to the maximum extent possible and making this threat system information accessible to all MDA organizations. As a result, this Project supports all four of the overarching MDA objectives:

1) In support of the Initial Defensive Capability (IDC) objective, this Project provides:
   a. System Engineering & Integration (SE&I) with threat data information for populating the Adversaries Capability Document (ACD);
   b. Countermeasures/Counter-Countermeasures (CM/CCM) with detailed information regarding threat systems and countermeasures capabilities;
   c. Modeling & Simulation (M&S) with all threat modeling and support activities, to include threat ballistic missile capabilities, signature data, and countermeasures.
2) In support of the BMDS on alert objective, this Project supports the Command Control and Battle Management Communications (C2BMC) with critical signature data acquired from national technical means necessary to engage enemy missiles.
3) In support of the concurrent testing and operations procedures objective, this Project provides the Joint Warfighter Support Project with a realistic opposing force team for all MDA sponsored wargames and exercises. This uncooperative opponent uses likely threat courses of action (based on threat scenarios) thereby enabling the development of effective US responses and a Concept of Operations (CONOPS) through integrated wargaming and scenario support.
4) In support of the enhanced BMDS capabilities objective, this Project continues to maximize exploitation of threat data throughout the FYDP.

In an effort to improve the relevance and timeliness of intelligence information to influence the development of a BMDS capability, the Intelligence Project Office is working more aggressively with the MDA community in order to provide more specificity in requests for intelligence collection efforts from the Intelligence Community, e.g., rather than request all information associated with a known threat system, requests will be for specific information based on requests for information from the MDA community.

**B. Accomplishments/Planned Program**

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Intelligence Support | | 450 | 523 |
| RDT&E Articles (Quantity) | | | |

Work closely with the Intelligence Community and the various BMDS Component Managers in order to ensure missile defense intelligence production requirements (PR) are accurately defined and designed to support development and deployment of a BMDS capable of countering a missile threat.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 PLANNED PROGRAM:
- Develop intelligence production requirements to provide studies of foreign missile parameters in sufficient detail to allow developers of missile defenses to engage and destroy threat missiles.
- Develop intelligence production requirements to provide country specific foreign missile: doctrine, strategies, tactics, concepts of operation, order of battle, command and control structure, denial and deception methods, and operating procedures.

FY 2005 PLANNED PROGRAM:
- Develop intelligence production requirements to provide studies of foreign missile parameters in sufficient detail to allow developers of missile defenses to engage and destroy threat missiles.
- Develop intelligence production requirements to provide country specific foreign missile: doctrine, strategies, tactics, concepts of operation, order of battle, command and control structure, denial and deception methods, and operating procedures.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Tactics & Specifications Center (TSC) Program | | 3,550 | 4,000 |
| RDT&E Articles (Quantity) | | | |

Conduct threat modeling and threat capabilities studies and analyses. Develop detailed characterizations of threat missile systems for analysis of the BMDS. Characterizations include highly detailed threat missile specifications (aerodynamics, mass properties, propulsion, guidance), penaid suite specifications and deployment dynamics, and infrared (IR) and radio frequency (RF) signatures for all threat objects. Conduct studies and analyses based on "surrogate intelligence," i.e., intelligence outside the range of traditional intelligence estimates.

FY 2004 PLANNED PROGRAM:
- Produce all required threat missile specifications for two (2) capabilities-based scenarios, to include Intel-based as well as conceptual missile systems.
- Update the Threat Modeling & Simulation System (TMSS).

FY 2005 PLANNED PROGRAM:
- Produce all required threat missile specifications for two (2) capabilities-based scenarios, to include intell-based as well as conceptual missile systems.
- Update the TMSS.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Special Programs Center (SPC) | | 2,400 | 2,600 |
| RDT&E Articles (Quantity) | | | |

Develop and produce threat scenario trajectory data designed for use in analyzing the engineering and architecture of the BMDS. These scenarios are critical to the development of concept of operations (CONOPS) for the BMDS. Also perform modeling and simulation of all threat missiles and related objects for use in scenario development.

FY 2004 PLANNED PROGRAM:
- Produce and combine all simulation and trajectory data necessary to support the scenario production effort.
- Update the Threat Modeling & Simulation System (TMSS).

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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:
- Produce and combine all simulation and trajectory data necessary to support the scenario production effort.
- Update the TMSS.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| SPC Wargaming | | 400 | 400 |
| RDT&E Articles (Quantity) | | | |

Represent the opposing force in all MDA sponsored wargames and exercises including Integrated Missile Defense (IMD) 04. Portray a realistic and dynamic opponent to enable effective analyses of tactics used for the BMDS in order to assist in the development of concept of operations (CONOPS) for the BMDS.

FY 2004 PLANNED PROGRAM:
- Provide threat support in all MDA sponsored and supported wargames and exercises.

FY 2005 PLANNED PROGRAM:
- Provide threat support in all MDA sponsored and supported wargames and exercises.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| MASINT | | 4,266 | 5,000 |
| RDT&E Articles (Quantity) | | | |

Measurement and Signature Intelligence (MASINT) applications for missile defense testing and contingency support is a high priority requirement in support of the agency mission. MASINT functions include electro-optical, radar and radio frequency tasking, collection, analysis and testing. Exploiting these areas provides some of the best possibilities for worldwide missile launch detection, characterization and typing. Also, these capabilities and associated sensor and processing assets provides an important infrastructure for building near term (Block 04 and 06) missile defense systems. Incorporating current MASINT asset capabilities, tailoring those capabilities to the BMD mission and connectivity to designated BMDS Command and Control (C2) nodes is critical.

FY 2004 PLANNED PROGRAM:
- Restructure current MASINT reporting to provide real-time (R/T) data streams to BMD node(s).
- Leverage community algorithm development effort for ballistic missile events and focus on reporting to enhance missile defense.
- Establish National Sensor Integration Rapid Prototype (NSIRP) to provide enhanced and more timely reporting of missile launch events, system type, metric and signature data summaries in a reduced timeline and directed by MDA requirements.

FY 2005 PLANNED PROGRAM:
- 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.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Current Intelligence/Intelligence, Surveillance & Reconnaissance (ISR) Support | | 1,500 | 1,500 |
| RDT&E Articles (Quantity) | | | |

Provide MDA Senior Leadership with situation awareness based on current intelligence relating to (1) foreign ballistic missile developments affecting BMDS, and (2) other worldwide events/crises involving countries that possess ballistic missiles. Maintain webpage on MDA's SIPRNET and JWICS websites.

Support Measurement and Signature Intelligence (MASINT) efforts by providing data management and analysis necessary to assess sensors and sensor systems to support detection, classification and reporting of worldwide ballistic missile activity.

FY 2004 PLANNED PROGRAM:
- Prepare and present daily intelligence summaries, current intelligence briefings, and monthly intelligence digests to apprise MDA Senior Leadership of relevant missile related intelligence.
- Apply results of data management and scientific analysis to current and developing sensor systems for ISR functions and thereby leverage technologies to enhance the metric or signature discrimination elements of the BMDS function.

FY 2005 PLANNED PROGRAM:
- Continue preparing and presenting daily intelligence summaries, current intelligence briefings, and monthly intelligence digests to apprise MDA Senior Leadership of relevant missile related intelligence.
- Continue applying results of data management and scientific analysis to current and developing sensor systems for ISR functions and thereby leverage technologies to enhance the metric or signature discrimination elements of the BMDS function.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Forces & Capabilities Assessment Element | | 0 | 400 |
| RDT&E Articles (Quantity) | | | |

Draw on available intelligence (e.g., Intelligence Community reports, defense contractor studies, in-house analyses) to determine adversary capabilities and force utilization. Track terrorist activities, including potential use of missiles launched from non-traditional platforms. Acquire intelligence with greater fidelity from the Intelligence Community. Develop systems and tools to better communicate intelligence requirements and products, particularly in support of international missile defense partnership programs.

FY 2004 PLANNED PROGRAM: Effort starts in FY05.

FY 2005 PLANNED PROGRAM:
- Further develop and enhance a visualization software tool (that was initially developed under the Intelligence Program Task) to communicate threat picture and options based on intelligence data (support to MDA/CF (MDA Deputy Director for Cooperative Programs and Allied Support) and to the MDA National Team).
- Conduct various studies based on adversary use of missiles against the U.S. and its interests.
- Conduct studies to understand and take into account adversary technical capability and strategy.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Project Management | | 6,575 | 6,700 |
| RDT&E Articles (Quantity) | | | |

**C. Other Program Funding Summary**

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0603889C Ballistic Missile Defense Products | 0 | 305,309 | 418,608 | 421,049 | 445,971 | 456,339 | 469,621 | Continuing | Continuing |
| PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD | 887,616 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD | 138,922 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0605502C Small Business Innovative Research - MDA | 138,791 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0901585C Pentagon Reservation | 7,432 | 14,327 | 13,884 | 12,958 | 12,850 | 13,158 | 13,476 | Continuing | Continuing |
| PE 0901598C Management Headquarters - MDA | 35,331 | 92,449 | 141,923 | 146,099 | 145,112 | 151,727 | 154,583 | Continuing | Continuing |
| PE 0603175C Ballistic Missile Defense Technology | 151,217 | 225,268 | 204,320 | 199,468 | 246,291 | 286,286 | 305,365 | Continuing | Continuing |
| PE 0603869C Meads Concepts - Dem/Val | 101,754 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603879C Advanced Concepts, Evaluations and Systems | 0 | 149,993 | 256,159 | 229,512 | 232,463 | 231,583 | 224,626 | Continuing | Continuing |
| PE 0603880C Ballistic Missile Defense System Segment | 1,028,016 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603881C Ballistic Missile Defense Terminal Defense Segment | 134,093 | 874,527 | 937,748 | 993,048 | 1,117,657 | 570,000 | 410,324 | Continuing | Continuing |
| PE 0603882C Ballistic Missile Defense Midcourse Defense Segment | 3,056,035 | 3,744,066 | 4,404,335 | 3,067,800 | 3,087,147 | 1,881,298 | 1,802,257 | Continuing | Continuing |
| PE 0603883C Ballistic Missile Defense Boost Defense Segment | 705,643 | 617,270 | 492,614 | 555,667 | 611,736 | 473,602 | 455,961 | Continuing | Continuing |
| PE 0603884C Ballistic Missile Defense Sensors | 327,013 | 425,421 | 591,957 | 790,265 | 1,453,679 | 1,122,189 | 1,232,893 | Continuing | Continuing |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0603886C Ballistic Missile Defense System Interceptors | 0 | 117,719 | 511,262 | 1,118,599 | 1,717,480 | 2,196,531 | 2,449,322 | Continuing | Continuing |
| PE 0603888C Ballistic Missile Defense Test and Targets | 0 | 635,782 | 716,427 | 673,476 | 656,152 | 654,015 | 688,119 | Continuing | Continuing |

**D. Acquisition Strategy**

Not Applicable. The Intelligence efforts are intended to support all BMDS components (and functional areas) as needed in order to influence and enhance overall BMDS design, architecture, and concept of operations.

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | | | | | | |

**Remarks**

**II. Support Costs Cost ( $ in Thousands )**

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Intelligence Support** | | | | | | | | | | |
| USAF | | NASIC (Travel Costs)/ Wright Patterson, OH | 0 | 150 | 1/4Q | 150 | 1/2Q | CONT. | 300 | TBD |
| MDA | CPFF | Northrup Grumman/ Huntsville, AL | 0 | 258 | 3Q | 333 | 2Q | CONT. | 591 | TBD |
| MDA | SS/TM | Abyl Consulting/ Herndon, VA | 0 | 12 | 1Q | 0 | | | 12 | TBD |
| MDA | MIPR | MSIC (Travel Costs)/ Huntsville, AL | 0 | 30 | 1/4Q | 40 | 1/4Q | CONT. | 70 | TBD |
| **Tactics & Specifications Center (TSC) Program** | | | | | | | | | | |
| SMDC | Various | Tactics & Specs Ctr (TSC)/ Huntsville, AL | 0 | 2,800 | 2/4Q | 3,227 | 1/2Q | CONT. | 6,027 | TBD |
| MDA | CPFF | JHU/APL/ Laurel, MD | 0 | 70 | 1Q | 70 | 1/2Q | CONT. | 140 | TBD |
| MDA | | TBD | 0 | 300 | 3Q | 310 | 2Q | CONT. | 610 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| MDA | MIPR | NASIC/ Wright Patterson, OH | 0 | 140 | 2Q | 145 | 2Q | CONT. | 285 | TBD |
| MDA | MIPR | MSIC/ Huntsville, AL | 0 | 105 | 2/3Q | 110 | 2/3Q | CONT. | 215 | TBD |
| MDA | MIPR | ONI/ Washington, DC | 0 | 135 | 2Q | 138 | 2Q | CONT. | 273 | TBD |
| **Special Programs Center (SPC)** | | | | | | | | | | |
| JNIC (Special Programs Center (SPC)) | SS/CPAF | Northrup Grumman/ Schriever AFB, CO | 0 | 2,400 | 2/3Q | 2,600 | 2/3Q | CONT. | 5,000 | TBD |
| **SPC Wargaming** | | | | | | | | | | |
| JNIC (Special Programs Center (SPC)) | SS/CPAF | Northrup Grumman/ Schriever AFB, CO | 0 | 400 | 2/3Q | 400 | 1/2Q | CONT. | 800 | TBD |
| **MASINT** | | | | | | | | | | |
| MDA | MIPR | NRO/ Chantilly, VA | 0 | 800 | 2Q | 920 | 1/3Q | CONT. | 1,720 | TBD |
| MDA | MIPR | SMC-Northrup Grumman contract/ Los Angeles, CA | 0 | 1,300 | 2Q | 1,530 | 1/3Q | CONT. | 2,830 | TBD |
| MDA | MIPR | SMC-Raytheon Contract/ Los Angeles, CA | 0 | 1,100 | 3Q | 1,300 | 3Q | CONT. | 2,400 | TBD |
| MDA | | JNIC (SPC)/ Schriever AFB, CO | 0 | 620 | 2/3Q | 700 | 2Q | CONT. | 1,320 | TBD |
| MDA | MIPR | NASIC/ Wright Patterson, OH | 0 | 446 | 2/4Q | 550 | 2/3Q | CONT. | 996 | TBD |
| **Current Intelligence/Intelligence, Surveillance & Reconnaissance (ISR) Support** | | | | | | | | | | |
| MDA | SS/CPAF | PRA/ San Diego, CA | 0 | 1,000 | 2/3Q | 1,000 | 1/3Q | CONT. | 2,000 | TBD |
| MDA | Various | TBD | 0 | 500 | 1/3Q | 500 | 1/3Q | CONT. | 1,000 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Forces & Capabilities Assessment Element** | | | | | | | | | | |
| MDA | Various | TBD | 0 | 0 | | 400 | 1/2Q | CONT. | 400 | TBD |
| Subtotal Support Costs | | | 0 | 12,566 | | 14,423 | | 0 | 26989 | |

**Remarks**

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

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Test and Evaluation | | | | | | | | | | |

**Remarks**

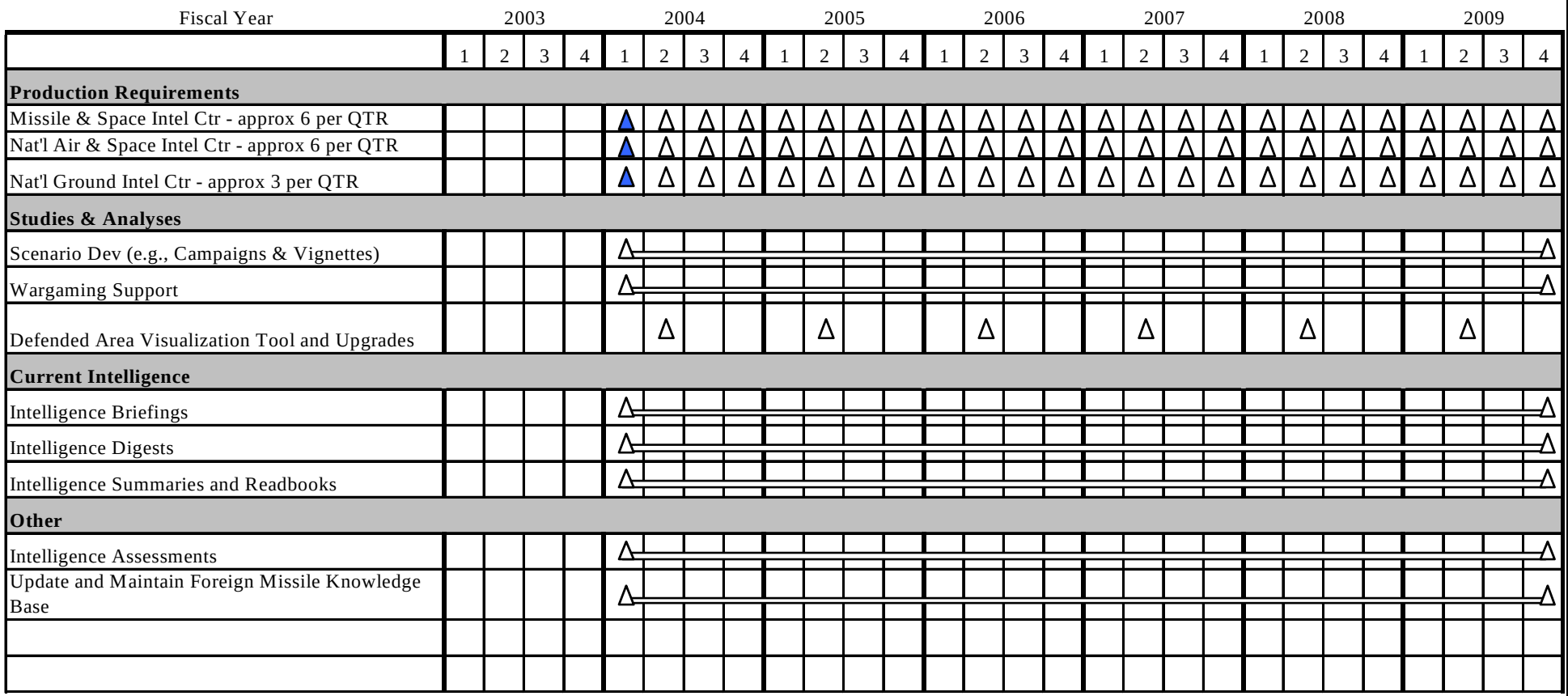
**IV. Management Services Cost ( $ in Thousands )**

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Project Management** | | | | | | | | | | |
| Govt Personnel | | SMDC/ Huntsville, AL | 0 | 275 | 1/4Q | 290 | 1/4Q | CONT. | 565 | TBD |
| Support Contracts | C/FFP | BAH/ McLean, VA | 0 | 2,776 | 1/4Q | 2,850 | 2Q | CONT. | 5,626 | TBD |
| Support Contract | SS/CPAF | BAH/ McLean, VA | 0 | 600 | 2Q | 0 | | TBD | 600 | TBD |
| Support Contract | C/FFP | TBD/ TBD | 0 | 2,000 | 2/3Q | 2,740 | 1/2Q | CONT. | 4,740 | TBD |
| Support Contract | FFP | Northrup Grumman/ Huntsville, AL | 0 | 200 | 1/3Q | 200 | 1/2Q | CONT. | 400 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Support Contract | CPAF | CSC/ VA | 0 | 124 | 1/3Q | 0 | | CONT. | 124 | TBD |
| Support Contract | MIPR | SMC (Aerospace)/ Los Angeles, CA | 0 | 600 | 1Q | 620 | | CONT. | 1,220 | TBD |
| Subtotal Management Services | | | 0 | 6,575 | | 6,700 | | 0 | 13275 | |
| **Remarks** | | | | | | | | | | |
| Project Total Cost | | | 0 | 19,141 | | 21,123 | | | 40,264 | |
| **Remarks** | | | | | | | | | | |

| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |



| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| **Production Requirements** | | | | | | | |
| Missile & Space Intel Ctr - approx 6 per QTR | | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q |
| Nat'l Air & Space Intel Ctr - approx 6 per QTR | | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q |
| Nat'l Ground Intel Ctr - approx 3 per QTR | | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q | 1Q,2Q,3Q,4Q |
| **Studies & Analyses** | | | | | | | |
| Scenario Dev (e.g., Campaigns & Vignettes) | | 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 |
| Defended Area Visualization Tool and Upgrades | | 2Q | 2Q | 2Q | 2Q | 2Q | 2Q |
| **Current Intelligence** | | | | | | | |
| Intelligence Briefings | | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q |
| Intelligence Digests | | 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 |
| **Other** | | | | | | | |
| Intelligence Assessments | | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q |
| Update and Maintain Foreign Missile Knowledge Base | | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| 0203 Joint Warfighter Support | 0 | 242 | 0 | 0 | 0 | 0 | 0 |
| RDT&E Articles Qty | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: In FY 2002 and FY 2003, this Project was funded under PE 0603880C (BMD System), Project 1055.*

*Starting FY 2005, this project is captured under PE 0603889C (BMD Products) Projects, 0703, 0803 and 0903.*

**A. Mission Description and Budget Item Justification**

The missile defense program focuses on the development of a single, integrated, layered Ballistic Missile Defense System (BMDS). Factors critical to deploying an effective BMDS include an understanding by joint warfighters of missile defense technologies and capabilities; the development and incorporation by joint warfighters of an Integrated Missile Defense (IMD) Concept of Operations (CONOPS) and other human interface factors into evolutionary designs of the BMDS; providing comprehensive and timely Integrated Logistic Support to the BMDS, including training and sustainment of hardware/software equipment; and coordinating rapid and efficient delivery and fielding of the elements of the BMDS and its subsequent block enhancements to the Combatant Commanders (CoComs) for actual operational employment against threat ballistic missiles.

The Deputy for Force Structure Integration and Deployment (TR) works with the CoComs, Services and Joint Staff, international Allies and Friends to achieve these missions, and the Joint Warfighter Support Program (JWSP) is its key integrating mechanism. By using a comprehensive series of interactive seminars, tabletops, wargames, and exercises, the JWSP ensures that warfighter operational perspectives and concerns are reflected in the development of BMDS capabilities and that areas of improvement in the BMDS are identified for action. This program also supports planning for emergency deployments, experiments, System Integrated Tests, and Hardware in the Loop Tests requiring enhanced use of JNIC to support operational concept development. This program further provides funds to support MDA participation in the Joint Air and Missile Defense (JTAMD) process; coordinated development of the BMDS integrated architecture; pro-active planning for the efficient integration of the BMDS into coherent offensive-defensive warfighting capabilities; and other integrating functions, including working with foreign military forces and emerging international BMDS partners.

The JWSP also ensures that the CoComs are provided with a BMDS that is supported logistically by establishing overarching logistics policies and practices. The program facilitates transition and transfer of BMD capabilities to the Services, as directed; develops an above-element training program that educates and trains staffs and senior decision makers about BMDS capabilities; and develops and operates the MDA Operations Center (MOC) as an enabler for rapid technical support to the Combatant Commands.

**B. Accomplishments/Planned Program**

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Government Personnel | | 242 | |
| RDT&E Articles (Quantity) | | | |

In FY 2004 funds was reprogrammed to PE 0603890C Project 0101 consolidated salary account.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0603889C Ballistic Missile Defense Products | 0 | 305,309 | 418,608 | 421,049 | 445,971 | 456,339 | 469,621 | Continuing | Continuing |
| PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD | 887,616 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD | 138,922 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0605502C Small Business Innovative Research - MDA | 138,791 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0901585C Pentagon Reservation | 7,432 | 14,327 | 13,884 | 12,958 | 12,850 | 13,158 | 13,476 | Continuing | Continuing |
| PE 0901598C Management Headquarters - MDA | 35,331 | 92,449 | 141,923 | 146,099 | 145,112 | 151,727 | 154,583 | Continuing | Continuing |
| PE 0603175C Ballistic Missile Defense Technology | 151,217 | 225,268 | 204,320 | 199,468 | 246,291 | 286,286 | 305,365 | Continuing | Continuing |
| PE 0603869C Meads Concepts - Dem/Val | 101,754 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603879C Advanced Concepts, Evaluations and Systems | 0 | 149,993 | 256,159 | 229,512 | 232,463 | 231,583 | 224,626 | Continuing | Continuing |
| PE 0603880C Ballistic Missile Defense System Segment | 1,028,016 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603881C Ballistic Missile Defense Terminal Defense Segment | 134,093 | 874,527 | 937,748 | 993,048 | 1,117,657 | 570,000 | 410,324 | Continuing | Continuing |
| PE 0603882C Ballistic Missile Defense Midcourse Defense Segment | 3,056,035 | 3,744,066 | 4,404,335 | 3,067,800 | 3,087,147 | 1,881,298 | 1,802,257 | Continuing | Continuing |
| PE 0603883C Ballistic Missile Defense Boost Defense Segment | 705,643 | 617,270 | 492,614 | 555,667 | 611,736 | 473,602 | 455,961 | Continuing | Continuing |
| PE 0603884C Ballistic Missile Defense Sensors | 327,013 | 425,421 | 591,957 | 790,265 | 1,453,679 | 1,122,189 | 1,232,893 | Continuing | Continuing |
| PE 0603886C Ballistic Missile Defense System Interceptors | 0 | 117,719 | 511,262 | 1,118,599 | 1,717,480 | 2,196,531 | 2,449,322 | Continuing | Continuing |
| PE 0603888C Ballistic Missile Defense Test and Targets | 0 | 635,782 | 716,427 | 673,476 | 656,152 | 654,015 | 688,119 | Continuing | Continuing |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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**

Joint Warfighter Support will continue to follow the MDA's capability-based acquisition strategy that emphasizes assessment, spiral-development testing and evolutionary acquisition through the definition of two-year capability blocks. TR will accomplish this through development and vetting of Operational Concepts through JTAMDO, the Combatant Commanders and the Services utilizing seminars, workshops, table tops, wargames and exercises, which also support Military Utility Assessment.

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | | | | | | |

**Remarks**

**II. Support Costs Cost ( $ in Thousands )**

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Support Costs | | | | | | | | | | |

**Remarks**

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

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Test and Evaluation | | | | | | | | | | |

**Remarks**

**IV. Management Services Cost ( $ in Thousands )**

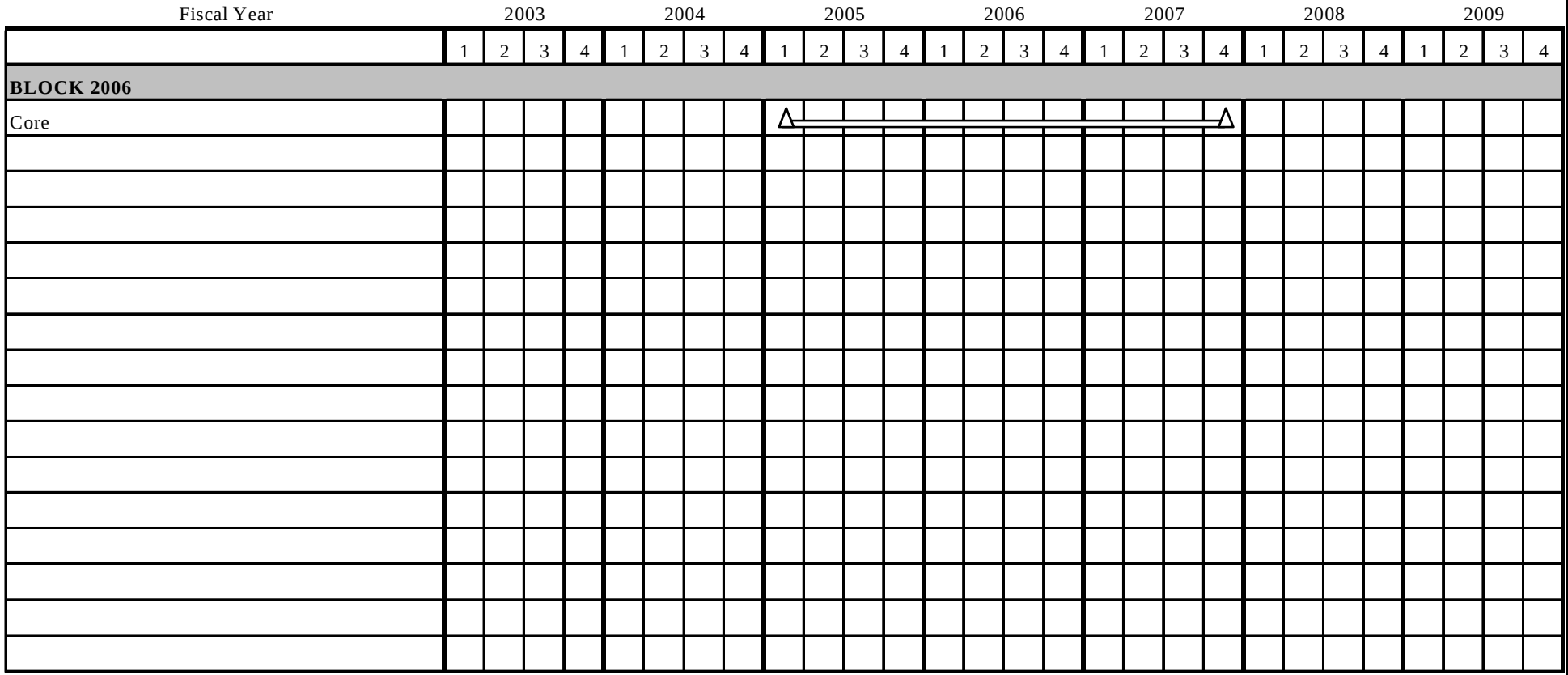
| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Government Personnel** | | | | | | | | | | |
| | | MDA/ Arlington VA | | 242 | 2Q | | | | 242 | |
| Subtotal Management Services | | | 0 | 242 | | 0 | | 0 | 242 | |

**Remarks**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Project Total Cost | | | 0 | 242 | | 0 | | | 242 | |

**Remarks**

| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |



| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| **BLOCK 2006** | | | | | | | |
| Core | | | 1Q-4Q | 1Q-4Q | 1Q-4Q | | |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| 0103 Producibility & Manufacturing Technology | 0 | 38,821 | 33,219 | 29,658 | 37,676 | 41,037 | 43,952 |
| RDT&E Articles Qty | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: In FY 2002 and FY 2003, this Project was funded under PE 0603880C (BMD System).*

**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 producibility enhancements. Manufacturing risk assessments are accomplished through Engineering and Manufacturing Risk 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 manufactures (OEMs), supplier base, and others that produce end items for the BMDS. Near Term Producibility Improvements are accomplished through the MP Key Investment Area (KIA) Structure: Power Systems, Radiation Hardening (RAD HARD), Manufacturing Processes and Advanced Materials, Electro-Optics/Infrared (EO/IR), Lasers and Ladar, Radar and RF, Propulsion, Signal Processing and Adaptive Computing, Composite Materials and Structure, and Software. 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.

**B. Accomplishments/Planned Program**

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Power Systems | | 1,000 | 1,500 |
| RDT&E Articles (Quantity) | | | |

The Power Systems Key Investment Area objective is to provide alternative higher energy density power sources for BMDS systems that are more producible, reliable, and predictable. This includes advanced but available thermal power sources for interceptors, as well as other advanced primaries for KVs. Higher density secondary (rechargeable) power sources for STSS and possibly the High Altitude Airship (HAA), and advanced but available solar array technology that can be hardened against natural and enhanced radiation environments.

FY 2004 PROGRAM:

- Battery Manufacturing Improvements:
  -- Processes - lithium oxyhalide battery manufacturing layout improvements
  -- Modeling - assist in developing high fidelity battery design and performance models and manufacturing process models that will enable the optimization of MDA batteries
  -- Risk Mitigation and Evaluation - lithium oxyhalide battery feasibility study and representative prototype demonstration as an alternate approach to current battery baselined for THAAD and GBI

FY 2005 PLANNED PROGRAM:

- Continue FY04 initiatives in Battery Manufacturing Improvements
- Initiate efforts in Solar Cells, Fuel Cells, and High Capacity Storage Devices

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Radiation Hardening | | 10,500 | 13,000 |
| RDT&E Articles (Quantity) | | | |

The Radiation Hardening Key Investment Area objective is to provide an integrated strategy to increase the availability of affordable Radiation Hardened (RH) and Radiation Tolerant (RT) devices for MDA application. 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.

FY 2004 PROGRAM:

- Cataloging of industry capabilities
- Radiation Hardened Electronics:
  -- Non-Volatile Memory - Chalcogenide RAM (C-RAM) and 1 Mb EEPROM
  -- Field Programmable Gate Array (FPGA)
  -- A/D Read Out Integrated Circuit (ROIC) Converter
  -- Hardened Solar Array

FY 2005 PLANNED PROGRAM:

- Continue FY04 initiatives in Radiation Hardened Electronics
- Initiate efforts in Electro-Optical Sensors to include optical filters and coatings and signal processors

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Manufacturing Processes and Advanced Materials | | 7,192 | 800 |
| RDT&E Articles (Quantity) | | | |

The Manufacturing Processes and Advanced Materials Key Investment Area objective is to identify manufacturing processes, practices, and advanced materials 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 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.

FY 2004 PROGRAM:

- Manufacturing Processes:
  -- Engineering Manufacturing Readiness Levels (EMRLs)
  -- Lean Manufacturing processes
- Advanced Materials:

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core |

-- Removing hazardous materials
-- Weight reduction, performance improvements
-- Insulating materials

FY 2005 PLANNED PROGRAM:

- Continue FY04 initiatives in Manufacturing Processes and Advanced Materials
- Initiate efforts in Commercial Off-The-Shelf (COTS)/Parts Obsolescence, Technology Refresh, Tin Whiskers, and Supply Chain as they impact the BMDS

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Electro-Optics/Infrared (EO/IR) | | 7,600 | 3,300 |
| RDT&E Articles (Quantity) | | | |

The Electro-Optics/Infrared (EO/IR) Key Investment Area objective is to implement producibility and reliability programs to assure availability of Radiation Hardened (RH) and Radiation Tolerant (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.

FY 2004 PROGRAM:

- Advanced Very Long Wavelength Infrared (VLWIR) Detectors, VLWIR FPA, and STSS FPA
- Two-Color FPA - establish manufacturing technology to lower cost, enhance availability of two-color long wavelength IRFPAs with increased discrimination capability for insertion into AEGIS BMD and MKV
- Visible Hybrid - support satellite missions by developing for STSS visible or Near IR sensors for sunlit targets and star trackers
- Passive Sensor Mirror Development
- Hybrid Stirling/ Pulse Tube Cryocooler - design and fabricate high efficiency, high capacity protoflight cryocooler and flight electronics for multistage sensor and optics cooling built to STSS requirements

FY 2005 PLANNED PROGRAM:

- Continue FY04 initiatives in VLWIR Detectors, VLWIR FPA, STSS FPA, Two-Color FPA, Visible Hybrid, Passive Sensor Mirror Development, and Hybrid Stirling/Pulse Tube Cryocooler
- Initiate efforts in Optical Filters and Coatings

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Lasers & LADAR | | 3,100 | 1,400 |
| RDT&E Articles (Quantity) | | | |

The Lasers Key Investment Area objective is to demonstrate producible and available systems to meet MDA capability improvements for interceptors, airborne and space platforms. Efforts will provide modular approaches and architectures with different power levels to meet the range and sensitivity requirements of each venue. Support of critical subsystem developments to avoid production and cost obstacles to Laser technology insertion will also be performed.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 PROGRAM:

- Pump-Phased Laser Diode

FY 2005 PLANNED PROGRAM:

- Initiate High Powered Laser efforts
- Initiate an Angle-Angle Range LADAR Program

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Radar & RF | | 1,800 | 2,500 |
| RDT&E Articles (Quantity) | | | |

The Radar & RF Key Investment Area 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 T/R Modules and 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.

FY 2004 PROGRAM:

- High Temperature Electronic Devices - Silicon Carbide (SiC) Microwave Monolithic Integrated Circuits (MMIC) and High Voltage Gallium Arsenide (GaAs) producibility enhancements
- Packaging Technology - technical evaluation of available packaging technologies for phased array radar system T/R modules
- Wide Band Gap RF Devices - test methodologies to achieve high reliability and repeatable components for military systems in evaluation of candidate devices for insertion into MDA systems

FY 2005 PLANNED PROGRAM:

- Continue FY04 initiatives in High Temperature Electronic Devices, Packaging Technologies for T/R Modules, and Wide Band Gap RF Devices
- Initiate efforts in T/R Modules and Line Arrays

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Propulsion | | 3,400 | 3,000 |
| RDT&E Articles (Quantity) | | | |

The Propulsion Key Investment Area 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.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 PROGRAM:

- TDACS (Throttling Divert & Attitude Control System) - advance technology for a solid propellant DACS utilizing energy management schemes and a proportional throttling pintle design. Fabricate flight-weight components for system and subsystem tests, which will demonstrate operability and scalability of the design.
- Material Characterization - will address reliability for various high temperature materials to establish well defined materials properties, which are required to ensure satisfactory design margins for high system reliability from the beginning of the design process

FY 2005 PLANNED PROGRAM:

- TDACS - continue FY04 efforts to further proportional Pintle DACS for insertion into BMDS
- Material Characterization - continue efforts to improve understanding of C-SiC/Composites characteristics during high temperature operation
- Axial Propulsion - explore producibility enhancements and identify insertion candidates for Solid Rocket Motor (SRM) manufacturing improvements that benefit BMDS Elements

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Signal Processing & Adaptive Computing | | 0 | 2,500 |
| RDT&E Articles (Quantity) | | | |

The Signal Processing & Adaptive Computing Key Investment Area objective is to implement very high throughput computational hardware and novel architectures that provide order-of-magnitude increases in image and signal processing capability, with current generation proven semiconductor and optical devices.

FY 2004 PROGRAM:

- Funding in this project is not programmed until FY05

FY 2005 PLANNED PROGRAM:

- Develop and assess the producibility of wideband processor technology to support a capability of instantaneous processing to 1 GHz

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Composite Materials & Structures | | 0 | 1,200 |
| RDT&E Articles (Quantity) | | | |

The Composite Materials & Structures Key Investment Area 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.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 PROGRAM:

- Funding in this project is not programmed until FY05

FY 2005 PLANNED PROGRAM:
- Composite Sunshade - develop a replacement for the baseline Beryllium sensor sunshade for EKV using a low-density composite material that meets structural, dynamic, and permeability requirements for insertion into the GMD EKV
- Next Generation Composite Canisters (NGCC) - develop and demonstrate common manufacturing processes for missile canisters across multiple MDA systems to reduce cost and weight and improve operational capabilities
- Integrated Heatshield Thermal Analysis - provide government-run thermal characterization, analysis, and testing of competing integral heatshield designs and materials for insertion into THAAD

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Software | | 0 | 252 |
| RDT&E Articles (Quantity) | | | |

The Software Key Investment Area objective is to provide tools and techniques for generating software that is more producible, reliable, and able to be maintained in a predictable and affordable manner.

FY 2004 PROGRAM:

- Funding in this project is not programmed until FY05

FY 2005 PLANNED PROGRAM:

- Provide object-oriented C++, commercial software, and software standards where appropriate
- Use of innovative techniques for converting and integrating legacy software, including ADA
- Developing techniques for generating software in a structured environment to reduce the overall software burden for system integrators

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| SETA Contract Support | | 3,460 | 2,743 |
| RDT&E Articles (Quantity) | | | |

- Staff augmentation, engineering, program management, and administrative support

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P) | R-1 NOMENCLATURE: 0603890C Ballistic Missile Defense System Core |

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Government Salaries | | 769 | 1,024 |
| RDT&E Articles (Quantity) | | | |

- Program strategy, leadership, planning, programming, and execution of MP initiatives

**C. Other Program Funding Summary**

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0605502C Small Business Innovative Research - MDA | 138,791 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0901585C Pentagon Reservation | 7,432 | 14,327 | 13,884 | 12,958 | 12,850 | 13,158 | 13,476 | Continuing | Continuing |
| PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD | 138,922 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0901598C Management Headquarters - MDA | 35,331 | 92,449 | 141,923 | 146,099 | 145,112 | 151,727 | 154,583 | Continuing | Continuing |
| PE 0603889C Ballistic Missile Defense Products | 0 | 305,309 | 418,608 | 421,049 | 445,971 | 456,339 | 469,621 | Continuing | Continuing |
| PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD | 887,616 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603175C Ballistic Missile Defense Technology | 151,217 | 225,268 | 204,320 | 199,468 | 246,291 | 286,286 | 305,365 | Continuing | Continuing |
| PE 0603869C Meads Concepts - Dem/Val | 101,754 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603879C Advanced Concepts, Evaluations and Systems | 0 | 149,993 | 256,159 | 229,512 | 232,463 | 231,583 | 224,626 | Continuing | Continuing |
| PE 0603880C Ballistic Missile Defense System Segment | 1,028,016 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603881C Ballistic Missile Defense Terminal Defense Segment | 134,093 | 874,527 | 937,748 | 993,048 | 1,117,657 | 570,000 | 410,324 | Continuing | Continuing |
| PE 0603882C Ballistic Missile Defense Midcourse Defense Segment | 3,056,035 | 3,744,066 | 4,404,335 | 3,067,800 | 3,087,147 | 1,881,298 | 1,802,257 | Continuing | Continuing |
| PE 0603883C Ballistic Missile Defense Boost Defense Segment | 705,643 | 617,270 | 492,614 | 555,667 | 611,736 | 473,602 | 455,961 | Continuing | Continuing |
| PE 0603884C Ballistic Missile Defense Sensors | 327,013 | 425,421 | 591,957 | 790,265 | 1,453,679 | 1,122,189 | 1,232,893 | Continuing | Continuing |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0603886C Ballistic Missile Defense System Interceptors | 0 | 117,719 | 511,262 | 1,118,599 | 1,717,480 | 2,196,531 | 2,449,322 | Continuing | Continuing |
| PE 0603888C Ballistic Missile Defense Test and Targets | 0 | 635,782 | 716,427 | 673,476 | 656,152 | 654,015 | 688,119 | Continuing | Continuing |

**D. Acquisition Strategy**

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

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Power Systems** | | | | | | | | | | |
| | MIPR | NSWC/ Crane, IN | | 900 | 1Q | 1,350 | 1Q | CONT. | 2,250 | TBD |
| **Radiation Hardening** | | | | | | | | | | |
| | | AFRL/ Kirtland, NM | | 3,250 | 1Q | 4,500 | 1Q | CONT. | 7,750 | TBD |
| | CPFF | Fibertek/ Herndon,VA | | 1,200 | 1Q | 1,500 | 1Q | CONT. | 2,700 | TBD |
| | | SMDC/ Huntsville, AL | | 2,150 | 1Q | 3,000 | 1Q | CONT. | 5,150 | TBD |
| | MIPR | Various | | 2,850 | 2Q | 2,700 | 2Q | CONT. | 5,550 | TBD |
| **Manufacturing Processes and Advanced Materials** | | | | | | | | | | |
| SMDC | CPFF | Vanguard/CA | | 2,500 | 1Q | 400 | 1Q | CONT. | 2,900 | TBD |
| NSWC | CPFF | Northrup Grumman/CA | | 1,000 | 1Q | 50 | 1Q | CONT. | 1,050 | TBD |
| Man Proc & Adv. Materials | MIPR | REDCOM/AL | | 1,000 | 2Q | 50 | 2Q | CONT. | 1,050 | TBD |
| Man Proc & Adv. Materials | MIPR | Various | | 1,973 | 2Q | 220 | 2Q | CONT. | 2,193 | TBD |
| **Electro-Optics/Infrared (EO/IR)** | | | | | | | | | | |
| EO/IR | | AFRL/ Kirtland, NM | | 4,590 | 2Q | 2,250 | 2Q | CONT. | 6,840 | TBD |
| ONR | CPFF | Electro-optics Center/ Kittaning, PA | | 1,350 | 2Q | 720 | 2Q | CONT. | 2,070 | TBD |
| NAVAIR | CPFF | Essex Corp/ Columbia, MD | | 900 | 2Q | | | | 900 | |
| **Lasers & LADAR** | | | | | | | | | | |
| ONR | CPFF | Electro-Optics Center/ Kittaning, PA | | 2,790 | 2Q | 1,260 | 2Q | CONT. | 4,050 | TBD |
| **Radar & RF** | | | | | | | | | | |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | | | | | | | | | Date: February 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| ONR | | CREE; Triquint/NC; TX | | 1,470 | 1Q | 2,000 | 1Q | CONT. | 3,470 | TBD |
| Radar & RF | | NRL/ Washington, DC | | 150 | 1Q | 250 | 1Q | CONT. | 400 | TBD |
| **Propulsion** | | | | | | | | | | |
| SMDC | CPFF | Aerojet/ Sacramento, CA | | 2,510 | 2Q | 2,100 | 2Q | CONT. | 4,610 | TBD |
| Propulsion | MIPR | NSWCCD/MD | | 375 | 2Q | 400 | 2Q | CONT. | 775 | |
| Propulsion | MIPR | NAWCWD/CA | | 175 | 2Q | 200 | 2Q | CONT. | 375 | |
| **Signal Processing & Adaptive Computing** | | | | | | | | | | |
| | Various | Various | | | | 2,250 | 2Q | CONT. | 2,250 | TBD |
| **Composite Materials & Structures** | | | | | | | | | | |
| | Various | Various | | | | 1,080 | 2Q | CONT. | 1,080 | TBD |
| **Software** | | | | | | | | | | |
| | Various | Various | | | | 227 | 2Q | CONT. | 227 | TBD |
| Subtotal Product Development | | | 0 | 31,133 | | 26,507 | | 0 | 57640 | |

**Remarks**

**II. Support Costs Cost ( $ in Thousands )**

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Power Systems** | | | | | | | | | | |
| | MIPR | NSWC/ Crane, IN | | 100 | 2Q | 150 | 2Q | CONT. | 250 | TBD |
| **Radiation Hardening** | | | | | | | | | | |
| | | AFRL/ Kirtland, NM | | 350 | 1Q | 425 | 1Q | CONT. | 775 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | | | | | | | | | | Date: February 2004 |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| | CPFF | Fibertek/ Herndon, VA | | 150 | 1Q | 225 | 1Q | CONT. | 375 | TBD |
| | | SMDC/ Hunstville, AL | | 240 | 1Q | 300 | 1Q | CONT. | 540 | TBD |
| | MIPR | Various | | 310 | 2Q | 350 | 2Q | CONT. | 660 | TBD |
| **Manufacturing Processes and Advanced Materials** | | | | | | | | | | |
| SMDC | CPFF | Vanguard/CA | | 275 | 2Q | 40 | 2Q | CONT. | 315 | TBD |
| NSWC | CPFF | Northrup Grumman/CA | | 115 | 2Q | 10 | 2Q | CONT. | 125 | TBD |
| Man. Proc. & Adv. Materials | MIPR | REDCOM/AL | | 110 | 2Q | 5 | 2Q | CONT. | 115 | TBD |
| Man. Proc. & Adv. Materials | MIPR | Various | | 219 | 2Q | 25 | 2Q | CONT. | 244 | TBD |
| **Electro-Optics/Infrared (EO/IR)** | | | | | | | | | | |
| EO/IR | | AFRL/ Kirtland, NM | | 490 | 2Q | 250 | 2Q | CONT. | 740 | TBD |
| ONR | CPFF | Electro-Optics Center/ Kittaning, PA | | 170 | 2Q | 80 | 2Q | CONT. | 250 | TBD |
| NAVAIR | CPFF | Essex Corp/ Columbia, MD | | 100 | 2Q | | | | 100 | |
| **Lasers & LADAR** | | | | | | | | | | |
| ONR | CPFF | Electro-Optics Center/ Kittaning, PA | | 310 | 2Q | 140 | 2Q | CONT. | 450 | TBD |
| **Radar & RF** | | | | | | | | | | |
| ONR | | CREE; Triquint/NC; TX | | 170 | 2Q | 225 | 2Q | CONT. | 395 | TBD |
| Radar & RF | | NRL/ Washington, DC | | 10 | 2Q | 25 | 2Q | CONT. | 35 | TBD |
| **Propulsion** | | | | | | | | | | |
| SMDC | CPFF | Aerojet/ Sacramento, CA | | 275 | 2Q | 225 | 2Q | CONT. | 500 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Propulsion | MIPR | NSWCCD/MD | | 40 | 2Q | 45 | 2Q | CONT. | 85 | TBD |
| Propulsion | MIPR | NAWCWD/CA | | 25 | 2Q | 30 | 2Q | CONT. | 55 | TBD |
| **Signal Processing & Adaptive Computing** | | | | | | | | | | |
| | Various | Various | | | | 250 | 2Q | CONT. | 250 | TBD |
| **Composite Materials & Structures** | | | | | | | | | | |
| | Various | Various | | | | 120 | 2Q | CONT. | 120 | TBD |
| **Software** | | | | | | | | | | |
| | Various | Various | | | | 25 | 2Q | CONT. | 25 | TBD |
| **SETA Contract Support** | | | | | | | | | | |
| | FFP | Andrulis/VA | | 2,250 | 2Q | 1,783 | 2Q | CONT. | 4,033 | TBD |
| | FFP | SPARTA/VA | | 1,210 | 2Q | 960 | 2Q | CONT. | 2,170 | TBD |
| Subtotal Support Costs | | | 0 | 6,919 | | 5,688 | | 0 | 12607 | |

**Remarks**

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

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Test and Evaluation | | | | | | | | | | |

**Remarks**

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Government Salaries** | | | | | | | | | | |
| Government Personnel | | MDA/ VA | | 769 | 1Q | 1,024 | 1Q | CONT. | 1,793 | TBD |
| Subtotal Management Services | | | 0 | 769 | | 1,024 | | 0 | 1793 | |
| **Remarks** | | | | | | | | | | |
| Project Total Cost | | | 0 | 38,821 | | 33,219 | | | 72,040 | |

**Remarks**

| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| 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 | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| **Power Systems** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Battery Manufacturing Improvements | | | | | | | | | Δ | | | | | Δ | | | | | | | | | | | | | | |
| Solar & Fuel Cells, High Capacity Storage Devices | | | | | | | | | | | | | | | | Δ | | | | | | | | | | | | |
| **Radiation Hardening** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Catalog | | | | | | | | | | | | | | | Δ | | | | | | | | | | | | | |
| EO Sensors | | | | | | | | | Δ | | | | | Δ | | | | | | | | | | | | | | |
| RH Electronics | | | | | | | | Δ | Δ | Δ | | | | | | | | | | | | | | | | | | |
| **Manufacturing Processes and Advanced Materials** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Advanced Materials | | | | | | | | | | Δ | | | | | | | | | | | | | | | | | | |
| COTS, Tech Refresh, Tin Whiskers, Supply Chain | | | | | | Δ | | | | Δ | | | | Δ | | | | | | | | | | | | | | |
| Manufacturing Processes | | | | | | Δ | | | | Δ | | | | Δ | | | | | | | | | | | | | | |
| **EO/IR** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Advanced VLWIR | | | | | | Δ | | | | | | | | | | | | | | | | | | | | | | |
| Hybrid Stirling/Cryocooler | | | | | | | | | | | | | | | | Δ | | | | | | | | | | | | |
| Optical Filters/Coatings | | | | | | | | | | | | | | | | Δ | | | | | | | | | | | | |
| Passive Sensor Mirror Development | | | | | | | | | Δ | | | | | | | | | | | | | | | | | | | |
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| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| 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 | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| **EO/IR** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Two Color FPA | | | | | | | | | | | | Δ | | | | | | | | | | | | | | | | |
| Visible Hybrid | | | | | | | | | | | | | | | | Δ | | | | | | | | | | | | |
| **Lasers** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Power Lasers | | | | | | | | | | | | | | | | Δ | | | | | | | | | | | | |
| Pump Phased Diode | | | | | | | | | | | Δ | | | | | | | | | | | | | | | | | |
| **Radar & RF** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Voltage GaAs Producibility | | | | | | | Δ | | | | | | Δ | | | | | | | | | | | | | | | |
| RF Device Reliability Test | | | | | | | | | | | | Δ | | Δ | | | | | | | | | | | | | | |
| SiC MMIC Producibility Enhancement | | | | | | | | | | Δ | | | | Δ | | | | | | | | | | | | | | |
| **Propulsion** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Axial Propulsion | | | | | | | | | | | | Δ | | | | | | | | | | | | | | | | |
| Material Characterization | | | | | | | | Δ | | | | Δ | | | | | | | | | | | | | | | | |
| TDACS | | | | | | | Δ | | | Δ | | | | | Δ | | | | | | | | | | | | | |
| **Signal Processing and Adaptive Computing** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wide Band Processor Tech | | | | | | | | | | | | Δ | | | | | | | | | | | | | | | | |
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| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| 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 | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| **Composite Materials and Structures** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Composite Sunshade | | | | | | | | | | | | | Δ | | | | | | | | | | | | | | | |
| Integrated Heat Shield Analysis | | | | | | | | | | | | | Δ | | | | | | | | | | | | | | | |
| Next Generation Composite Canisters | | | | | | | | | | | | | Δ | | | | | | | | | | | | | | | |
| **Software** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Legacy (ADA) | | | | | | | | | | | | | | | | Δ | | | | | | | | | | | | |
| Standards | | | | | | | | | | Δ | | | | Δ | | | | | | | | | | | | | | |
| Structured Development | | | | | | | | | | | | | | | | Δ | | | | | | | | | | | | |
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| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| **Power Systems** | | | | | | | |
| Battery Manufacturing Improvements | | | 1Q | 2Q | | | |
| Solar & Fuel Cells, High Capacity Storage Devices | | | | 4Q | | | |
| **Radiation Hardening** | | | | | | | |
| Catalog | | | | 3Q | | | |
| EO Sensors | | | 1Q | 2Q | | | |
| RH Electronics | | 4Q | 1Q,2Q | | | | |
| **Manufacturing Processes and Advanced Materials** | | | | | | | |
| Advanced Materials | | | 2Q | | | | |
| COTS, Tech Refresh, Tin Whiskers, Supply Chain | | 2Q | 2Q | 2Q | | | |
| Manufacturing Processes | | 2Q | 2Q | 2Q | | | |
| **EO/IR** | | | | | | | |
| Advanced VLWIR | | 2Q | | | | | |
| Hybrid Stirling/Cryocooler | | | | 4Q | | | |
| Optical Filters/Coatings | | | | 4Q | | | |
| Passive Sensor Mirror Development | | | 1Q | | | | |
| Two Color FPA | | | 4Q | | | | |
| Visible Hybrid | | | | 4Q | | | |
| **Lasers** | | | | | | | |
| High Power Lasers | | | | 4Q | | | |
| Pump Phased Diode | | | 3Q | | | | |
| **Radar & RF** | | | | | | | |
| High Voltage GaAs Producibility | | 3Q | | 1Q | | | |
| RF Device Reliability Test | | | 4Q | 2Q | | | |
| SiC MMIC Producibility Enhancement | | | 2Q | 2Q | | | |
| **Propulsion** | | | | | | | |
| Axial Propulsion | | | 4Q | | | | |
| Material Characterization | | 4Q | 4Q | | | | |
| TDACS | | 3Q | 2Q | 3Q | | | |
| **Signal Processing and Adaptive Computing** | | | | | | | |
| Wide Band Processor Tech | | | 4Q | | | | |

| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| **Composite Materials and Structures** | | | | | | | |
| Composite Sunshade | | | | 1Q | | | |
| Integrated Heat Shield Analysis | | | | 1Q | | | |
| Next Generation Composite Canisters | | | | 1Q | | | |
| **Software** | | | | | | | |
| Legacy (ADA) | | | | 4Q | | | |
| Standards | | | 2Q | 2Q | | | |
| Structured Development | | | | 4Q | | | |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| 0105 Countermeasures/Counter-Countermeasures (CM/CCM) | 0 | 25,553 | 30,900 | 31,800 | 32,800 | 33,800 | 34,800 |
| RDT&E Articles Qty | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: This Project was funded under PE 0603882C (Midcourse Defense Segment), Project 3050, in FY 2002. In FY 2003, this Project was funded under PE 0603880C (BMD System), Project 1050, and PE 0603882C (Midcourse Defense Segment), Project 3050.*

**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) that 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 works in conjunction with Threat Systems Engineering to ensure consistency of these 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.

**B. Accomplishments/Planned Program**

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Adversary Engineering | | 7,300 | 7,500 |
| RDT&E Articles (Quantity) | | | |

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

FY 2004 PLANNED PROGRAM
- Characterize adversary countermeasures capabilities and phenomenology related to midcourse countermeasure design, deployment, and performance
- Develop a detailed parametric description of adversary capabilities and conceptual countermeasures through the midcourse phase of flight
- Deliver engineering designs for three conceptual midcourse countermeasure suites

FY 2005 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 designs for up to three conceptual countermeasure suites

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| BMDS Risk Assessment | | 9,503 | 12,150 |
| RDT&E Articles (Quantity) | | | |

BMDS Risk Assessment funds integrated performance and risk assessments of the BMDS against the adversary capability and conceptual countermeasures.

FY 2004 PLANNED PROGRAM
- Conduct a risk assessment of the BMDS performance against offensive ballistic missiles with countermeasure capabilities through the midcourse phase of flight

FY 2005 PLANNED PROGRAM
- Conduct risk assessments of BMDS performance against countermeasures

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Mitigation Concept Engineering | | 8,150 | 10,650 |
| RDT&E Articles (Quantity) | | | |

Mitigation Concept Engineering funds 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.

FY 2004 PLANNED PROGRAM
- Identify and characterize counter-countermeasures to mitigate BMDS risks posed by adversary ballistic missiles with countermeasures
- Initiate and integrate 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 counter-countermeasure initiatives
- Conduct advanced study to determine the engineering changes to the baseline BMDS required to integrate a counter-countermeasure initiative that enhances the lethality of kill vehicles
- Conduct advanced study to determine the engineering changes to the baseline BMDS required to improve integrated midcourse sensor target designation capabilities
- Perform system engineering and integration to support a demonstration of an advanced discrimination initiative

FY 2005 PLANNED PROGRAM
- Continue to 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

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Independent Assessment | | 600 | 600 |
| RDT&E Articles (Quantity) | | | |

Independent Assessment supports the operations of the analyses by the senior experts of the risk assessment and proposed mitigation approaches, and the assessment development.

FY 2004 PLANNED PROGRAM
- Conduct four 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 2005 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

**C. Other Program Funding Summary**

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0603889C Ballistic Missile Defense Products | 0 | 305,309 | 418,608 | 421,049 | 445,971 | 456,339 | 469,621 | Continuing | Continuing |
| PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD | 887,616 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD | 138,922 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0605502C Small Business Innovative Research - MDA | 138,791 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0901585C Pentagon Reservation | 7,432 | 14,327 | 13,884 | 12,958 | 12,850 | 13,158 | 13,476 | Continuing | Continuing |
| PE 0901598C Management Headquarters - MDA | 35,331 | 92,449 | 141,923 | 146,099 | 145,112 | 151,727 | 154,583 | Continuing | Continuing |
| PE 0603175C Ballistic Missile Defense Technology | 151,217 | 225,268 | 204,320 | 199,468 | 246,291 | 286,286 | 305,365 | Continuing | Continuing |
| PE 0603869C Meads Concepts - Dem/Val | 101,754 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603879C Advanced Concepts, Evaluations and Systems | 0 | 149,993 | 256,159 | 229,512 | 232,463 | 231,583 | 224,626 | Continuing | Continuing |
| PE 0603880C Ballistic Missile Defense System Segment | 1,028,016 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0603881C Ballistic Missile Defense Terminal Defense Segment | 134,093 | 874,527 | 937,748 | 993,048 | 1,117,657 | 570,000 | 410,324 | Continuing | Continuing |
| PE 0603882C Ballistic Missile Defense Midcourse Defense Segment | 3,056,035 | 3,744,066 | 4,404,335 | 3,067,800 | 3,087,147 | 1,881,298 | 1,802,257 | Continuing | Continuing |
| PE 0603883C Ballistic Missile Defense Boost Defense Segment | 705,643 | 617,270 | 492,614 | 555,667 | 611,736 | 473,602 | 455,961 | Continuing | Continuing |
| PE 0603884C Ballistic Missile Defense Sensors | 327,013 | 425,421 | 591,957 | 790,265 | 1,453,679 | 1,122,189 | 1,232,893 | Continuing | Continuing |
| PE 0603886C Ballistic Missile Defense System Interceptors | 0 | 117,719 | 511,262 | 1,118,599 | 1,717,480 | 2,196,531 | 2,449,322 | Continuing | Continuing |
| PE 0603888C Ballistic Missile Defense Test and Targets | 0 | 635,782 | 716,427 | 673,476 | 656,152 | 654,015 | 688,119 | Continuing | Continuing |

**D. Acquisition Strategy**

The execution of program activities is a collaborative effort of the Missile Defense National Team, involving subject matter experts composed of Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), and System 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. CCM initiatives will be executed by various labs and industry contractors through the MDA Advanced Systems Deputate and BMDS Element Program Offices.

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | | | | | | |

**Remarks**

**II. Support Costs Cost ( $ in Thousands )**

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Adversary Engineering** | | | | | | | | | | |
| SETA Support | CPFF | SPARTA/ VA | | 857 | 2Q | 860 | 2Q | CONT. | 1,717 | TBD |
| SETA Support | CPFF | CSC/ VA | | 118 | 2Q | 120 | 2Q | CONT. | 238 | TBD |
| CM Design | | Xontech/ NM | | 198 | 2Q | 200 | 2Q | CONT. | 398 | TBD |
| Models and Signatures | | Delta Research/ AL | | 125 | 2Q | 125 | 2Q | CONT. | 250 | TBD |
| Intel Projections | Various | NAIC/MSIC/ Various | | 125 | 2Q | 125 | 2Q | CONT. | 250 | TBD |
| Models and Simulations | MIPR | ARL/ NM | | 500 | 2Q | 500 | 2Q | CONT. | 1,000 | TBD |
| Analysis Support | MIPR | Battelle/ OH | | 250 | 2Q | 250 | 2Q | CONT. | 500 | TBD |
| Countermeasure Engineering and Analysis | | Missile Defense Center/ VA | | 3,000 | 3Q | 3,100 | 3Q | CONT. | 6,100 | TBD |
| **BMDS Risk Assessment** | | | | | | | | | | |
| SETA Support | CPFF | CSC/ MA | | 470 | 2Q | 550 | 2Q | CONT. | 1,020 | TBD |
| System Engineering & Integration | CPAF | Boeing/ VA | | 530 | 2Q | 650 | 2Q | CONT. | 1,180 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Assessment Support | Various | MDA Elements/ Various | | 7,293 | 2Q | 9,550 | 2Q | CONT. | 16,843 | TBD |
| **Mitigation Concept Engineering** | | | | | | | | | | |
| System Engineering and Integration | CPAF | Boeing/ VA | | 3,600 | 2Q | 4,400 | 2Q | CONT. | 8,000 | TBD |
| Concept Development | Various | MDA Elements/ Various | | 4,550 | 2Q | 6,250 | 2Q | CONT. | 10,800 | TBD |
| **Independent Assessment** | | | | | | | | | | |
| Subtotal Support Costs | | | 0 | 21,616 | | 26,680 | | 0 | 48296 | |

**Remarks**

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

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Test and Evaluation | | | | | | | | | | |

**Remarks**

**IV. Management Services Cost ( $ in Thousands )**

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Adversary Engineering** | | | | | | | | | | |
| Lab Support | | APL/ MD | | 234 | 2Q | 250 | 2Q | CONT. | 484 | TBD |
| Lab Support | MIPR | IDA/ VA | | 575 | 2Q | 600 | 2Q | CONT. | 1,175 | TBD |
| Lab Support | MIPR | CNA/ VA | | 163 | 2Q | 170 | 2Q | CONT. | 333 | TBD |
| Lab Support | MIPR | MIT-LL/ MA | | 690 | 2Q | 700 | 2Q | CONT. | 1,390 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Lab Support | MIPR | Sandia / NM | | 465 | 2Q | 500 | 2Q | CONT. | 965 | TBD |
| **BMDS Risk Assessment** | | | | | | | | | | |
| Lab Support | MIPR | MIT-LL/ MA | | 690 | 2Q | 750 | 2Q | CONT. | 1,440 | TBD |
| Lab Support | | APL/ MD | | 520 | 2Q | 650 | 2Q | CONT. | 1,170 | TBD |
| **Independent Assessment** | | | | | | | | | | |
| Lab Support | | IDA/ VA | | 600 | 2Q | 600 | 2Q | CONT. | 1,200 | TBD |
| Subtotal Management Services | | | 0 | 3,937 | | 4,220 | | 0 | 8157 | |
| **Remarks** | | | | | | | | | | |
| Project Total Cost | | | 0 | 25,553 | | 30,900 | | | 56,453 | |
| **Remarks** | | | | | | | | | | |

| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| 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 | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| **Adversary Engineering** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Deliver Countermeasure Concepts | | | | | ▲ | | Δ | Δ | Δ | | Δ | Δ | Δ | | Δ | Δ | Δ | | Δ | Δ | Δ | | Δ | Δ | Δ | | Δ | Δ |
| Deliver Special Studies Report | | | | | ▲ | | | | Δ | | | | Δ | | | | Δ | | | | Δ | | | | Δ | | | |
| **BMDS Risk Assessment** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Develop Annual Study Plan | | | | | | | | Δ | | | | Δ | | | | Δ | | | | Δ | | | | Δ | | | | Δ |
| **Mitigation Concept Engineering** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Incorporate CCM Options into System Evolution Plan | | | | | | | Δ | Δ | | | Δ | Δ | | | Δ | Δ | | | Δ | Δ | | | Δ | Δ | | | Δ | Δ |

| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| **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 | | 1Q | 1Q | 1Q | 1Q | 1Q | 1Q |
| **BMDS Risk Assessment** | | | | | | | |
| Develop Annual Study Plan | | 4Q | 4Q | 4Q | 4Q | 4Q | 4Q |
| Conduct Performance Assessments | | 1Q,2Q | 1Q,2Q | 1Q,2Q | 1Q,2Q | 1Q,2Q | 1Q,2Q |
| **Mitigation Concept Engineering** | | | | | | | |
| Develop Counter-Countermeasure Options | | 2Q,3Q | 2Q,3Q | 2Q,3Q | 2Q,3Q | 2Q,3Q | 2Q,3Q |
| Incorporate CCM Options into System Evolution Plan | | 3Q,4Q | 3Q,4Q | 3Q,4Q | 3Q,4Q | 3Q,4Q | 3Q,4Q |
| Present Counter-Counter Options to MDA CCB | | 1Q,4Q | 1Q,4Q | 1Q,4Q | 1Q,4Q | 1Q,4Q | 1Q,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 |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| 0202 Hercules Core | 0 | 26,276 | 0 | 0 | 0 | 0 | 0 |
| RDT&E Articles Qty | 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 and 0902, Project Hercules Blocks 06 and 08, respectively.*

**A. Mission Description and Budget Item Justification**

This Project covers the core elements of Project Hercules. The Hercules products are described in PE 060889C, 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 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Project Hercules | | 26,276 | |
| RDT&E Articles (Quantity) | | | |

1) 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.

2) 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.

3) 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.

4) 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.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0603175C Ballistic Missile Defense Technology | 151,217 | 225,268 | 204,320 | 199,468 | 246,291 | 286,286 | 305,365 | Continuing | Continuing |
| PE 0603869C Meads Concepts - Dem/Val | 101,754 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603879C Advanced Concepts, Evaluations and Systems | 0 | 149,993 | 256,159 | 229,512 | 232,463 | 231,583 | 224,626 | Continuing | Continuing |
| PE 0603880C Ballistic Missile Defense System Segment | 1,028,016 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603881C Ballistic Missile Defense Terminal Defense Segment | 134,093 | 874,527 | 937,748 | 993,048 | 1,117,657 | 570,000 | 410,324 | Continuing | Continuing |
| PE 0603882C Ballistic Missile Defense Midcourse Defense Segment | 3,056,035 | 3,744,066 | 4,404,335 | 3,067,800 | 3,087,147 | 1,881,298 | 1,802,257 | Continuing | Continuing |
| PE 0603883C Ballistic Missile Defense Boost Defense Segment | 705,643 | 617,270 | 492,614 | 555,667 | 611,736 | 473,602 | 455,961 | Continuing | Continuing |
| PE 0603884C Ballistic Missile Defense Sensors | 327,013 | 425,421 | 591,957 | 790,265 | 1,453,679 | 1,122,189 | 1,232,893 | Continuing | Continuing |
| PE 0603886C Ballistic Missile Defense System Interceptors | 0 | 117,719 | 511,262 | 1,118,599 | 1,717,480 | 2,196,531 | 2,449,322 | Continuing | Continuing |
| PE 0603888C Ballistic Missile Defense Test and Targets | 0 | 635,782 | 716,427 | 673,476 | 656,152 | 654,015 | 688,119 | Continuing | Continuing |
| PE 0603889C Ballistic Missile Defense Products | 0 | 305,309 | 418,608 | 421,049 | 445,971 | 456,339 | 469,621 | Continuing | Continuing |
| PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD | 887,616 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD | 138,922 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0605502C Small Business Innovative Research - MDA | 138,791 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0901585C Pentagon Reservation | 7,432 | 14,327 | 13,884 | 12,958 | 12,850 | 13,158 | 13,476 | Continuing | Continuing |
| PE 0901598C Management Headquarters - MDA | 35,331 | 92,449 | 141,923 | 146,099 | 145,112 | 151,727 | 154,583 | Continuing | Continuing |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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.

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | | | | | | |

**Remarks**

**II. Support Costs Cost ( $ in Thousands )**

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Project Hercules** | | | | | | | | | | |
| MIT/LL | CPFF | Hanscomb AFB | | 2,083 | 1Q | | | CONT. | 2,083 | CONT. |
| SEG | | NSWC-Corona, CA | | 1,093 | 1Q | | | CONT. | 1,093 | CONT. |
| Northrup Grumman XonTech | CPFF | Van Nuys, CA | | 2,106 | 1Q | | | CONT. | 2,106 | CONT. |
| SMDC Hercules | Various | Various | | 1,359 | 1Q | | | CONT. | 1,359 | CONT. |
| MDA Hercules | Various | Various | | 6,020 | 1Q | | | CONT. | 6,020 | CONT. |
| AFRL - Eglin AFB | Various | Various | | 840 | 1Q | | | CONT. | 840 | CONT. |
| Subtotal Support Costs | | | 0 | 13,501 | | 0 | | 0 | 13501 | |

**Remarks**

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

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Project Hercules** | | | | | | | | | | |
| Northrup Grumman XonTech | CPFF | Van Nuys, CA | | 1,755 | 1Q | | | CONT. | 1,755 | CONT. |
| SMDC Hercules | Various | Various | | 1,420 | 1Q | | | CONT. | 1,420 | CONT. |
| MDA Hercules | Various | Various | | 710 | 1Q | | | CONT. | 710 | CONT. |
| AFRL-Eglin AFB | Various | Various | | 820 | 1Q | | | CONT. | 820 | CONT. |
| Subtotal Test and Evaluation | | | 0 | 4,705 | | 0 | | 0 | 4705 | |

**Remarks**

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Project Hercules** | | | | | | | | | | |
| CSC-SETA | FFP | Fairfax, VA | | 1,891 | 1Q | | | CONT. | 1,891 | CONT. |
| SPARTA-SETA | FFP | Arlington, VA | | 1,730 | 1Q | | | CONT. | 1,730 | CONT. |
| MDA Hercules | Various | Various | | 3,238 | 1Q | | | CONT. | 3,238 | CONT. |
| SMDC Hercules | Various | Various | | 1,211 | 1Q | | | CONT. | 1,211 | CONT. |
| Subtotal Management Services | | | 0 | 8,070 | | 0 | | 0 | 8070 | |
| **Remarks** | | | | | | | | | | |
| Project Total Cost | | | 0 | 26,276 | | 0 | | | 26,276 | |

**Remarks**

| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| 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 | 2003 | | | | 2004 | | | | 2005 | | | | 2006 | | | | 2007 | | | | 2008 | | | | 2009 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| **Project Hercules** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Program Review | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | |
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| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| **Project Hercules** | | | | | | | |
| Program Review | | 1Q | | | | | |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| 0104 BMD Information Management Systems | 0 | 31,006 | 62,835 | 58,592 | 72,336 | 77,070 | 84,108 |
| RDT&E Articles Qty | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: In FY 2002 and FY 2003, Ballistic Missile Defense (BMD) Information Management Systems was an initiative under Project 1050, PE 0603880C (BMD System). In FY02, $7 million of additional funds for the BMD Information Management Systems effort was provided in Project 3050, PE 0603882C (Midcourse Defense Segment). In FY03, an additional $8.2 million was provided to support classified connectivity to the Ballistic Missile Defense System (BMDS) community facilitating information sharing to meet the aggressive Initial Defensive Operations (IDO) schedule for the BMDS.*

*Beginning in FY 2004, the BMD Information Management Systems Project is located in Project 0104 in PE 0603890C (Ballistic Missile Defense System Core).*

**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).

The BMD Information Management Systems project, executed by the Missile Defense Agency (MDA) Chief Information Office (CIO), consists of the following major initiatives: 1) Enterprise Architecture and Engineering, 2) Service IM/IT, 3) Public Key Infrastructure/Common Access Card (PKI/CAC) 4) Enterprise Communications Infrastructure 5) Enterprise IT Security, 6) Enterprise Information Management, 7) Data Centers, 8) Enterprise Plans and Policies, and 9) Virtual Data Centers (VDCs).

This 0104 Project includes vital initiatives such as the MDA Enterprise Communications Infrastructure that includes 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 & Simulation project.

This Project funds initiatives that support the MDA Systems Engineering and Integration (SE&I) mission for the BMDS System including:
- Information Assurance (IA) and Computer Network Defense (CND) management and Certification and Accreditation (C&A) 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 guidance, planning, oversight, and monitoring to enable the MDA enterprise with IM/IT capabilities to comply with statutes, regulations, directives, and policies;
- Establishing IM/IT policies, processes and infrastructure throughout the MDA enterprise that allows IM/IT operations to be performed in an efficient, secure, and effective manner.

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| 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 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Enterprise Architecture and Engineering | | 5,582 | 7,540 |
| RDT&E Articles (Quantity) | | | |

FY 2003 Accomplishments were achieved under PE 0603880C, BMD System, Project 1050.

Discussion: Enterprise Architecture and Engineering initiatives support the MDA and especially the Ballistic Missile Defense System (BMDS) Core projects by funding engineering support to design, develop and deploy the MDA Enterprise Architecture. The Enterprise Architecture will improve the management of and access to data, information and knowledge throughout the MDA. Development of the Enterprise Architecture will 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.

This initiative funds the development of an integrated MDA Enterprise Network with a single corporate identity; implementing reliable information storage that can maintain continuity and disaster recovery of operations; implementing information applications that support MDA business processes and E-government initiatives; implementing unclassified and classified enterprise portals to securely share information; and upgrading Video Teleconferencing Centers (VTCs) and Virtual Data Centers (VDCs) regional connectivity and capabilities. The DoD Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Framework is the model being used to develop an MDA Enterprise Information Architecture.

This initiative will support expansion of bandwidth to the MDA's VTC and VDCs to improve reliability of systems currently in place, and establish additional VTC sites to efficiently and effectively increase the information sharing capability to support the BMDS IDO schedule.

FY 2003 Accomplishments:
- Expanded MDANet to include Service Delivery Points (SDPs) and connectivity for SSTS, AEGIS
- Established mda.smil.mil stand-up at the Joint National Integration Center (JNIC) in Colorado and at the Ground-based Midcourse Defense (GMD) in Huntsville, AL
- Begin 14/7 monitoring of the Enterprise Network through the Network Operations Security Center.
- Delivered classified enterprise services to the NCR
- Initiated Disaster Recovery Program between the NCR and JNIC
- Began conversion of the VDC into the MDA classified knowledge repository (MDA Classified Portal)

FY 2004 Planned Program:
- Establish MDANet tail sites from SMDC to GMD Bradford Facility
- Establish MDA enterprise services at ABL Edward AFB
- Complete mda.smil.mil stand-up at locations servicing Space Tracking Surveillance System (SSTS), Airborne Laser (ABL), and National Capital Region (NCR) for existing user base.
- Continue engineering planning for IDO classified connectivity.
- Provide spiral 1 of the classified enterprise portal.
- Expand secure connectivity to BMDS elements.
- Implement Enterprise Disaster Recovery.
- Enhance VTC capabilities
- Sustain Network Operations and Security Center (NOSC) operations.

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| 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:
- 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.
- Expand secure connectivity to BMDS elements.
- Define IM/IT requirements and support planning, documentation, and testing of the BMDS to achieve Interim Approval to Operate (IATO)
- Continue implementation of Enterprise Disaster Recovery.
- Sustain Network Operations and Security Center (NOSC) operations.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Service IM/IT | | 4,032 | 5,347 |
| RDT&E Articles (Quantity) | | | |

Discussion: 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 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Public Key Infrastructure/Common Access Card (PKI/CAC) | | 1,860 | 3,770 |
| RDT&E Articles (Quantity) | | | |

Description: This initiative is a newly reported initiative for FY 2005. The funds in this initiative provides resources that protect information to safeguard data as it is being created, used, modified, stored, moved, and destroyed to ensure that all information has a level of trust commensurate with mission needs. This includes Public Key Infrastructure (enterprise-wide service that supports digital certificates and signatures and other public key-based security mechanisms for DoD functional domain programs); its associated manpower, HW/SW encryption services, and operational and support efforts. Public Key Enabling (PKE) includes the same needed to make applications capable of employing digital certificates and signatures. Also includes all Common Access Card (CAC)/Smart Card-related Information Assurance (IA) resources.

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FY 2004 Planned Program:
- Accelerate the development and use of Public Key Infrastructure (PKI) services and enable applications to support a broad range of security services.

FY 2005 Planned Program:
- Continue implementation of PKI/CAC for Enterprise applications.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| MDA Enterprise Communications Infrastructure | | 3,721 | 8,709 |
| RDT&E Articles (Quantity) | | | |

FY 2003 Accomplishments were achieved under PE 0603880C, BMD System, Project 1050.

Discussion: 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. Additionally, services are provided by other providers to monitor and manage network usage to ensure optimal reliability as well as ensuring network security.

FY 2003 Accomplishments
- Funded MDA Enterprise leased communications and services for existing circuits provided by DISA and DREN.
- Funded maintenance agreements on MDA Enterprise network equipment.
- Expanded MDANet connectivity to include AEGIS, GMD, ABL, and STSS.

FY 2004 Planned Program
- Upgrade obsolete networking equipment to improve system reliability and standardize equipment across the MDA Enterprise.
- Continue procurement and installation of Service Delivery Points (SDPs) that provide Wide Area Network (WAN) connectivity to MDA regional locations in accordance with the Enterprise Architecture design.
- Fund MDA Enterprise leased communications and services for existing circuits provided by DISA and DREN.
- Continue maintenance agreements on MDA Enterprise network equipment.

FY 2005 Planned Program
- Upgrade obsolete networking equipment to improve system reliability and standardize equipment across the MDA Enterprise.
- Fund MDA Enterprise leased communications for existing circuits provided by DISA and DREN.
- Continue maintenance agreements on MDA Enterprise network equipment.

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| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Enterprise Information Assurance | | 2,753 | 5,014 |
| RDT&E Articles (Quantity) | | | |

FY 2003 Accomplishments were achieved under PE 0603880C, BMD System, Project 1050.

Mission Description: Beginning in FY04, the Enterprise IT Security initiative was established to track IT security costs separately. The Information Assurance (IA)/Computer Network Defense (CND) Program objective is to implement Department security requirements across the Agency. This initiative is a vital aspect of the Ballistic Missile Defense System (BMDS) and the MDA Enterprise; it provides funding for Information Security and Assurance, Computer Network Defense (CND), Certification and Accreditation (C&A) activities within the Missile Defense Agency (MDA) infrastructure and network security operations centers, training and system security upgrades. This initiative will also integrate Protection Common Tools in MDA systems that manage, protect, detect, and react to system vulnerabilities, threats, reconfigurations, and reconstitutions. Risk management tools will be used to develop protection capabilities, enabling the war fighter to distribute complete and unaltered information and maintain a dynamic, continuous synchronous operational force.

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. This initiative 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. This entails architecture studies, system integration testing and C&A processes. Project efforts will also assess, procure and integrate hardware and software that provides protection for IT infrastructure.

FY 2003 Accomplishments:
- Completed Information Assurance Vulnerability Assessment (IAVA) Compliance.
- Completed Ports and Protocols Compliance.

FY 2004 Planned Program:
- Support IA Network Assessment to verify robustness of network tools.
- Develop initial capability to enhance training of Information. Assurance Officer (IAO) and Information Assurance Manager (IAM) to recognize and respond to IA attacks.
- Continue IA support to the BMDS elements.
- Operate MDA Enterprise NOSC.
- Evaluate IA tools.
- Select and assess advanced COTS/GOTS IA tools for use in the Agency.
- Complete C&A efforts to achieve ATO on classified/unclassified LANs/WAN's.

FY 2005 Planned Program:
- Continue to support C&A 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.
- Continue IAVA compliance.
- Continue to operate and maintain the NOSC.
- Begin a CND approach for the BMDS Block 6.
- Perform IA network assessments on BMDS and Enterprise architectures.

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| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Enterprise Information Management | | 1,240 | 2,513 |
| RDT&E Articles (Quantity) | | | |

FY 2003 Accomplishments were achieved under PE 0603880C, BMD System, Project 1050.

Discussion: The Enterprise Information Management initiative consists of projects that enable an integrated BMDS including: implementation of enterprise information applications which are used to collect, analyze, display and share data. Examples include the MD Enterprise Portal, E-Management System (EMS), an integrated master schedule tool, a personnel tracking system, a standard procurement system, and tools to assist the BMDS University. This initiative facilitates connecting the MDA elements and operators providing vital information sharing across the MDA community across the country which is essential to accomplishing the complex mission of the BMDS and supporting IDO. Examples of vital information sharing includes intelligence-related information provided to the countermeasures/counter-countermeasures (CM/CCM), the Command, Control, Battle Management and Communication (C2BMC); and the Modeling and Simulation (M&S) projects who use the data to collaborate on threat scenarios and design threat system countermeasures as well as kill vehicle discrimination algorithms.

FY 2003 Accomplishments:
- Conducted product evaluation and selected E-Management solution
- Procured pilot hardware and software licenses for unclassified E- Management System (EMS) project

FY 2004 Planned Program:
- Implement the EMS Phase 1 pilot program.
- Begin implementation of an unclassified and classified web-based Enterprise Portal.
- Begin implementation of application programs that support information sharing and collaboration, decision support tools, financial management, and automated task management.

FY 2005 Planned Program:
- Implement EMS Phase 2 program.
- Continue implementation of application programs that support information sharing and collaboration, decision support tools, financial management, and automated task management.
- Continue implementation of an unclassified and classified web-based Enterprise Portal.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Data Centers | | 6,512 | |
| RDT&E Articles (Quantity) | | | |

Discussion: The Data Center Program consists of Scientific and Technical Data Centers that facilitate acquiring, storing and distributing relevant BMD mission-related data in a secure manner throughout the MDA Enterprise. They provide access to the investment of years of vital MD data such as: architecture/systems engineering data; war gaming, modeling and simulations, science and technology data centers and flight test data, program data including financial, contracts administrative and personnel, and MD historical data. This data is linked to the MDA community through use of a classified portal using decision support tools and collaboration tools. Examples of vital information sharing includes intelligence-related information provided to the countermeasures/counter-countermeasures (CM/CCM), the Command, Control, Battle Management and Communication (C2BMC); and the Modeling and Simulation (M&S) projects who use the data to collaborate on threat scenarios and design threat system countermeasures as well as kill vehicle discrimination algorithms.

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Four Executing Agents receive funding for Data Centers and VDC operations. They 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, the Joint National Integration Center Ballistic Missile Defense System Integration Data Center (BMDS IDC) and the Naval Warfare Assessment Station in Corona, California receives funding from this initiative.

Each Data Center processes data relevant to their field of expertise. For example, NAWC developed an interface to existing data from the AEGIS Combat System, Ship Self Defense, STANDARD Missile, Fleet Readiness Assessment, Joint and Navy Warfare Exercises and BMD program. The NWAS role includes exercise planning, determining data collection requirements, maintaining data requirements definition, and collecting and assessing data.

Beginning in FY05, funding for the core Data Centers will be transferred to Project 0204 of PE 0603882C. Funding provided to the BMDS IDC will transition to the Virtual Data Center indicative within this project 0104.

FY 2004 Planned Program:
- Fund the Core Data Centers operation and maintenance.
- Begin implementation of Disaster Recovery Capability (Phase 1) at the BMDS IDC.

FY 2005 Planned Program:
- Transition indicative to project 0204 in PE 0603882C.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Virtual Data Centers | | 2,170 | 3,770 |
| RDT&E Articles (Quantity) | | | |

Description: The Virtual Data Center (VDC) indicative 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 allows for information sharing among the MDA community as well as access to the subject matter experts and desktop video teleconferencing capabilities as well as forums and bulletin boards.

Four Executing Agents receive funding for VDC operations. They 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 BMDS IDC will transition to the VDC initiative beginning in FY05.

The BMD Information Resource Center (BIRC), a resource and research service library, will begin conversion to a virtual library in FY04. The BIRC funding was located in Enterprise Information Management in FY02 and FY03. Beginning in FY04, the BIRC transitioned to a virtual library and the funding was moved to this initiative.

FY 2004 Planned Program:
- Fund the VDC Program operations and maintenance.
- Begin implementation of Disaster Recovery Capability (Phase 1) at the BMDS IDC.
- Begin the conversion of the BMD Information Resource Center (BIRC)to Virtual Data Center capability

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FY 2005 Planned Program:
- Fund the VDC Program operations and maintenance
- Continue implementation of Disaster Recovery Capability (Phase II)at the BMDS IDC

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Enterprise Plans & Policies | | 3,136 | 11,238 |
| RDT&E Articles (Quantity) | | | |

FY 2003 Accomplishments were achieved under PE 0603880C, BMD System, Project 1050.

Discussion: This initiative provides for 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.

This initiative also includes performance measurement assessment and management of the Enterprise IM/IT architecture and engineering contract, the Systems Engineering and Technical Advisor (SETA) CIO staff support provided by Engineering Management Concepts with Milestone Group as a subcontractor and a Federally Funded Research and Development Contractor (FFRDC) Technical Advisory effort performed by The MITRE Corporation. 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 (PPBE) 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 2003 Accomplishments:
- Submitted the Office and Management and Budget Exhibits 53 and 300, Selected Capital Investment Business Case analysis
- Published the MDA IM/IT Overarching Guideline and the Information Assurance (IA) Guideline
- Submitted the Government Paperwork Elimination Act (GPEA) Report for FY03
- Submitted the Federal Information Security Management Act (FISMA) Report for FY03
- Executed the CPIC process for FY04/05
- Managed FY03 Planning, Programming, Budgeting and Execution

FY 2004 Planned Program:
- Prepare budget submissions in accordance with the MDA Capital Planning and Investment Control (CPIC) process using OMB guidelines.
- Draft, coordinate, publish, and maintain policies, guidelines and processes in accordance with applicable legislation, OMB, OSD and DoD guidance.
- Prepare status reports and report metrics/progress of the MDA IM/IT Enterprise to OMB, OSD, and DoD.
- Coordinate all MDA/IO personnel management actions to include establishment of positions and hiring.
- Provide assistance in preparing for MDA Corporate Boards and CIO Advisory Committee (CAC) meetings.

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FY 2005 Planned Program:
- Prepare budget submissions in accordance with the MDA Capital Planning and Investment Control (CPIC) process using OMB guidelines for IM/IT technologies.
- Draft, coordinate, publish, and maintain policies, guidelines and processes in accordance with applicable legislation, OMB, OSD and DoD guidance.
- Prepare status reports and report metrics/progress of the MDA IM/IT Enterprise to OMB, OSD, and DoD CIO.
- Coordinate all MDA/IO personnel management actions to include establishment of positions and hiring.
- Provide assistance in preparing for MDA Corporate Boards and CIO Advisory Committee (CAC) meetings.

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Computing & Network Management Services | | | 14,934 |
| RDT&E Articles (Quantity) | | | |

Description: Computing Infrastructure costs include IT infrastructure costs to include cabling, desktop PCs, printers, and other peripherals to accommodate agency growth of government and contractors. Also included are the additional operations and support costs to support the additional staff at several separate locations. Costs also include IT equipment such as projectors, video teleconferencing equipment and other IT equipment needed to equip conference rooms with the capability to conduct meeting and accommodate information sharing across the MDA enterprise at many geographical locations.

**C. Other Program Funding Summary**

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD | 887,616 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603889C Ballistic Missile Defense Products | 0 | 305,309 | 418,608 | 421,049 | 445,971 | 456,339 | 469,621 | Continuing | Continuing |
| PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD | 138,922 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0901598C Management Headquarters - MDA | 35,331 | 92,449 | 141,923 | 146,099 | 145,112 | 151,727 | 154,583 | Continuing | Continuing |
| PE 0901585C Pentagon Reservation | 7,432 | 14,327 | 13,884 | 12,958 | 12,850 | 13,158 | 13,476 | Continuing | Continuing |
| PE 0603175C Ballistic Missile Defense Technology | 151,217 | 225,268 | 204,320 | 199,468 | 246,291 | 286,286 | 305,365 | Continuing | Continuing |
| PE 0603869C Meads Concepts - Dem/Val | 101,754 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603879C Advanced Concepts, Evaluations and Systems | 0 | 149,993 | 256,159 | 229,512 | 232,463 | 231,583 | 224,626 | Continuing | Continuing |
| PE 0603880C Ballistic Missile Defense System Segment | 1,028,016 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |

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| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0603881C Ballistic Missile Defense Terminal Defense Segment | 134,093 | 874,527 | 937,748 | 993,048 | 1,117,657 | 570,000 | 410,324 | Continuing | Continuing |
| PE 0603882C Ballistic Missile Defense Midcourse Defense Segment | 3,056,035 | 3,744,066 | 4,404,335 | 3,067,800 | 3,087,147 | 1,881,298 | 1,802,257 | Continuing | Continuing |
| PE 0603883C Ballistic Missile Defense Boost Defense Segment | 705,643 | 617,270 | 492,614 | 555,667 | 611,736 | 473,602 | 455,961 | Continuing | Continuing |
| PE 0603884C Ballistic Missile Defense Sensors | 327,013 | 425,421 | 591,957 | 790,265 | 1,453,679 | 1,122,189 | 1,232,893 | Continuing | Continuing |
| PE 0603886C Ballistic Missile Defense System Interceptors | 0 | 117,719 | 511,262 | 1,118,599 | 1,717,480 | 2,196,531 | 2,449,322 | Continuing | Continuing |
| PE 0603888C Ballistic Missile Defense Test and Targets | 0 | 635,782 | 716,427 | 673,476 | 656,152 | 654,015 | 688,119 | Continuing | Continuing |
| PE 0605502C Small Business Innovative Research - MDA | 138,791 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |

**D. Acquisition Strategy**

The BMD Information Management Systems Project will ensure that IM/IT assets acquired incorporate the Federal and statutory policies such as the Clinger-Cohen Act, the Federal Information Security Management (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.

FY 2004 activities will be focused on completing engineering and architectural plans, continuing development of the MDA Enterprise Network layer; implementing Phase I classified and unclassified of the Enterprise Portal and Phase 1 of the E-Management System (EMS), and the implementation of the PKI/CAC initiative for email support; certifying and accrediting BMDS systems and the MDA Enterprise Networks in accordance with information assurance (IA) requirements. These efforts will be a contributing factor in facilitating the efforts of the MDA to support the BMDS IDO schedule.

FY 2005 and beyond activities will be focused on completing Enterprise Network development, continued implementation of Information Sharing initiatives such as collaborative tools, PKI/CAC for applications, Phase 2 of the EMS, expanding the capability of Video Teleconferencing Center (VTC) and Virtual Data Center upgrades, and Phase II of the classified and unclassified enterprise portal.

MDA/IO uses contract support services to assist the CIO government staff with the implementation of the BMD Information Management Systems Project initiatives. MDA also uses Executing Agents to help accomplish the IM/IT mission. These Executing Agents operate under the cognizant authority of their individual Services (e.g. Army, Navy, and Air Force). Funds and initiatives provided to Executing Agents can be found in the Service IM/IT initiative and the Data Center initiative.

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | | | | | | |

**Remarks**

**II. Support Costs Cost ( $ in Thousands )**

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| **Enterprise Architecture and Engineering** | | | | | | | | | | |
| Ent Architecture & Engineering | MIPR | FEDSIM/SRA/ VA | | 2,121 | 1/2Q | 1,810 | 1/2Q | CONT. | 3,931 | |
| Ent Architecture & Eng. | C/FFP | Bearing Point/ VA | | 112 | 1Q | | | | 112 | |
| Ent Architecture & Engineering | C/CPAF | Northrop Grumman/ CO | | 3,293 | 2/3Q | 5,353 | 2/3Q | | 8,646 | |
| **Service IM/IT** | | | | | | | | | | |
| Service IM/IT | C/CPAF | SMDC/SAIC/ AL | | 2,943 | 4Q | 4,072 | 4Q | | 7,015 | |
| Service IM/IT | C/CPAF | PEO ASMD/SAIC/ AL | | 887 | 4Q | 1,244 | 4Q | | 2,131 | |
| Service IM/IT | C/CPFF | USAF/SAIC/ CA | | 202 | 1/2Q | 339 | 1/2Q | | 541 | |
| **Public Key Infrastructure/Common Access Card (PKI/CAC)** | | | | | | | | | | |
| PKI/CAC Support | MIPR | FEDSIM/SRA/ VA | | 1,860 | 1/2Q | 3,770 | 1/2Q | | 5,630 | |
| **MDA Enterprise Communications Infrastructure** | | | | | | | | | | |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | | | | | | | | | Date: February 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| Leased Comms | MIPR | DISA/ IL | | 1,823 | 1Q | 3,431 | 1Q | | 5,254 | |
| DREN circuits | MIPR | Army Rsch Lab/ MD | | 409 | 1Q | 1,056 | 1Q | | 1,465 | |
| Hub Site Support | MIPR | Army Rsch Lab/ MA | | 10 | 1Q | 10 | 1Q | | 20 | |
| Hub Site Support | MIPR | Army Research/ MD | | 23 | 1Q | 23 | 1Q | | 46 | |
| Vendor Maintenance | C/CPAF | Northrop Grumman/ CO | | 600 | 1/2Q | 2,254 | 1/2Q | | 2,854 | |
| VTC Maintenance & Support | SS/CPFF | SIGCOM/ VA | | 856 | 1/2Q | 1,935 | 1/2Q | | 2,791 | |
| **Enterprise Information Assurance** | | | | | | | | | | |
| DITSCAP Support | MIPR | FEDSIM/ VA | | 1,265 | 1/2Q | 2,488 | 1/2Q | | 3,753 | |
| C&A Support | MIPR | NAWC/EMC/ CA | | 1,488 | 1/2Q | 2,526 | 1/2Q | | 4,014 | |
| | | | | | | | | | | |
| **Enterprise Information Management** | | | | | | | | | | |
| Acquisition Support | C/CPAF | Northrop Grumman/ CO | | 1,240 | 1/2Q | 2,513 | 1/2Q | | 3,753 | |
| **Data Centers** | | | | | | | | | | |
| Data Center Support | C/CPAF | AMSC/ AL | | 1,758 | 1/3Q | | | | 1,758 | |
| Data Center Support | C/CPAF | MDDC/SAIC/ AL | | 2,995 | 1/3Q | | | | 2,995 | |
| Data Center Support | C/CPAF | BMDS IDC/ CO | | 456 | 1/3Q | | | | 456 | |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | | | | | | | | | Date: February 2004 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| Data Center Support | MIPR | NSWC/ CA | | 326 | 1/3Q | | | | 326 | |
| Data Center Support | Various | MDA/ VA | | 977 | 1/2Q | | | | 977 | |
| **Virtual Data Centers** | | | | | | | | | | |
| VDC Support | C/CPAF | AMSC/ AL | | 369 | 1/3Q | 641 | 1/3Q | | 1,010 | |
| VDC Support | C/CPAF | MDDC/ AL | | 239 | 1/3Q | 415 | 1/3Q | | 654 | |
| VDC Support | MIPR | NSWC/ CA | | 87 | 1/2Q | 151 | 1/2Q | | 238 | |
| VDC Support | C/CPAF | DRC/ VA | | 477 | 2Q | 603 | 2Q | | 1,080 | |
| VDC Support | C/CPAF | Northrop Grumman/ CO | | 998 | 2Q | 1,960 | 2Q | | 2,958 | |
| **Enterprise Plans & Policies** | | | | | | | | | | |
| SETA Support | SS/MIPR | NAWC / EMC/ Milestone Group/ VA | | 2,171 | 1Q | 3,318 | 1Q | CONT. | 5,489 | |
| FFRDC Support | SS/FFRDC | MITRE/ VA | | 62 | 1/3Q | 402 | 1/3Q | CONT. | 464 | |
| CIO Program Mgmt | Various | MDA/ VA | | 866 | 1/2Q | 7,386 | 1/2Q | | 8,252 | |
| CIO Misc | Various | MDA/ VA | | 93 | 1/2Q | 201 | 1/2Q | | 294 | |
| **Computing & Network Management Services** | | | | | | | | | | |
| Computing & Network Services | C/CPFF | Zen Tech/ VA | | | 1/3Q | 9,707 | 1/3Q | CONT. | 9,707 | TBD |

| MDA Exhibit R-3 RDT&E Project Cost Analysis | Date: February 2004 |
|---|---|
| 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 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Acquisition Support | MIPR | GOVWORKS/ VA | | | 1/3Q | 5,227 | 1/3Q | CONT. | 5,227 | TBD |
| Subtotal Support Costs | | | 0 | 31,006 | | 62,835 | | 0 | 93841 | |

**Remarks**

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

| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Test and Evaluation | | | | | | | | | | |

**Remarks**

**IV. Management Services Cost ( $ in Thousands )**

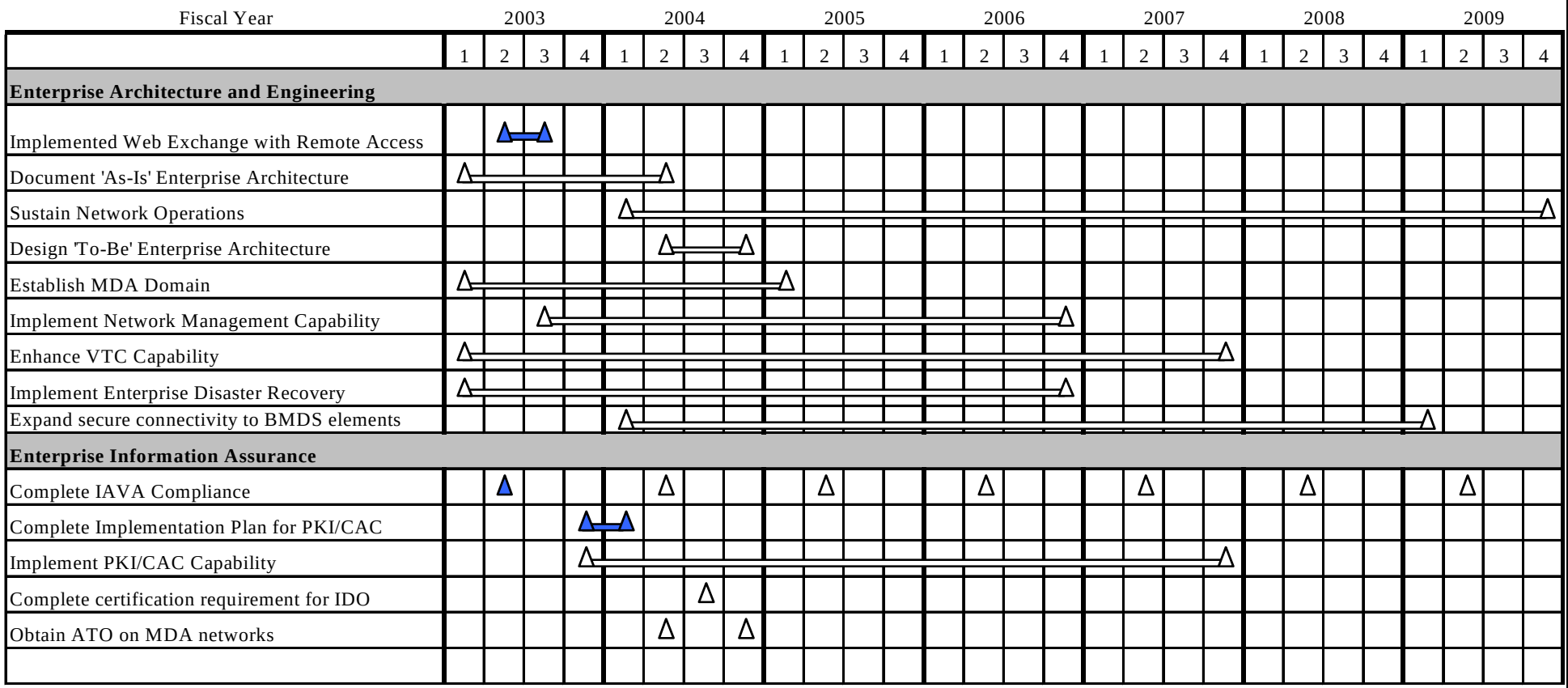
| Cost Categories: | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2004 Cost | FY 2004 Award Date | FY 2005 Cost | FY 2005 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Management Services | | | | | | | | | | |

**Remarks**

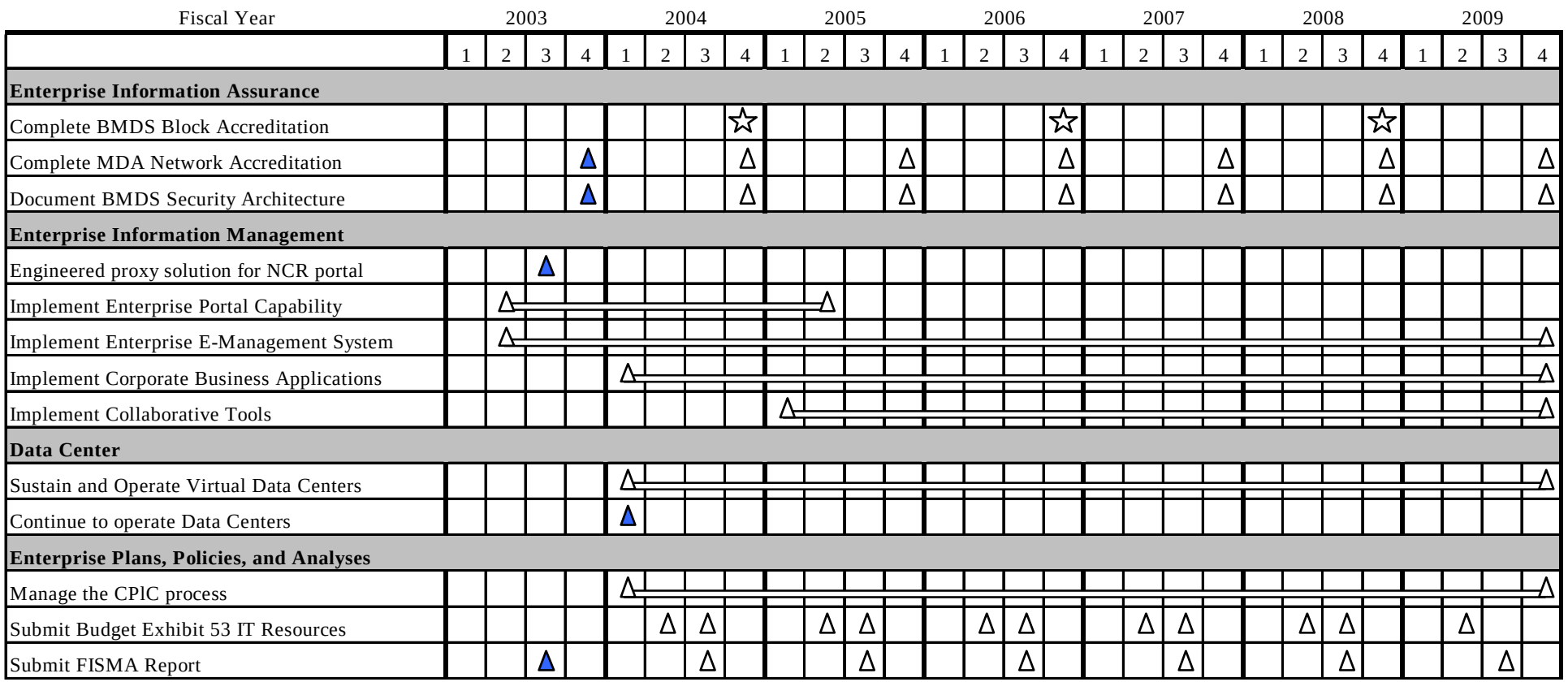
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Project Total Cost | | | 0 | 31,006 | | 62,835 | | | 93,841 | |

**Remarks**

| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |



| MDA Exhibit R-4 Schedule Profile | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |



| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| **Enterprise Architecture and Engineering** | | | | | | | |
| Completed Ports and Protocols Compliance | 3Q | | | | | | |
| Implemented Web Exchange with Remote Access | 2Q-3Q | | | | | | |
| Document 'As-Is' Enterprise Architecture | 1Q-4Q | 1Q-2Q | | | | | |
| Sustain Network Operations | | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q |
| Design 'To-Be' Enterprise Architecture | | 2Q-4Q | | | | | |
| Establish MDA Domain | 1Q-4Q | 1Q-4Q | 1Q | | | | |
| Implement Network Management Capability | 3Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | | | |
| Develop Network Op Security Ctr (NOSC) | 3Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | | | |
| Enhance VTC Capability | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | | |
| Implement Enterprise Disaster Recovery | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | | | |
| Expand secure connectivity to BMDS elements | | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q |
| **Enterprise Information Assurance** | | | | | | | |
| Complete IAVA Compliance | 2Q | 2Q | 2Q | 2Q | 2Q | 2Q | 2Q |
| Complete Implementation Plan for PKI/CAC | 4Q | 1Q | | | | | |
| Implement PKI/CAC Capability | 4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | | |
| Complete certification requirement for IDO | | 3Q | | | | | |
| Obtain ATO on MDA networks | | 2Q,4Q | | | | | |
| Complete BMDS Block Accreditation | | 4Q | | 4Q | | 4Q | |
| Complete MDA Network Accreditation | 4Q | 4Q | 4Q | 4Q | 4Q | 4Q | 4Q |
| Document BMDS Security Architecture | 4Q | 4Q | 4Q | 4Q | 4Q | 4Q | 4Q |
| **MDA Ent. Communications Infrastructure** | | | | | | | |
| Continue migration of circuits to DISA | 1Q | 4Q | | 1Q,2Q | | | |
| Execute Service Level Agreements for hub services | 1Q | 1Q | 1Q | 1Q | 1Q | 1Q | 1Q |
| Fund DISA/DREN for comms and services | 1Q | 1Q | 1Q | 1Q | 1Q | 1Q | 1Q |
| **Enterprise Information Management** | | | | | | | |
| Engineered proxy solution for NCR portal | 3Q | | | | | | |
| Implemented MDA Lessons Learned on Portal | 3Q | | | | | | |
| Implement Enterprise Portal Capability | 2Q-4Q | 1Q-4Q | 1Q-2Q | | | | |
| Implement Enterprise E-Management System | 2Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q |
| Initiate Disaster Recovery between NCR and JNIC | 4Q | 1Q-4Q | | | | | |

| MDA Exhibit R-4A Schedule Detail | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| Implement an E-Management System at GMD | | 1Q-4Q | 1Q | | | | |
| Implement the BMDS University applications | | 1Q-4Q | 1Q | | | | |
| Implement a Personnel Tracking System | | 1Q-4Q | 1Q | | | | |
| Implement a System Development Schedule | | 1Q-4Q | 1Q | | | | |
| Implement Corporate Business Applications | | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q |
| Implement Collaborative Tools | | | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q |
| **Data Center** | | | | | | | |
| Convert the BIRC to a Virtual Library | | 1Q-2Q | | | | | |
| Sustain and Operate Virtual Data Centers | | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q |
| Continue to operate Data Centers | | 1Q,4Q | | | | | |
| Process BMD data for MDA Information Sharing | 1Q,4Q | 1Q,4Q | 1Q,4Q | 1Q,4Q | 1Q,4Q | 1Q,4Q | 1Q,4Q |
| **Enterprise Plans, Policies, and Analyses** | | | | | | | |
| Manage the CPlC process | | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q |
| Update Info Security Approach w/evolving DoD Stnds | | 1Q-4Q | 1Q-4Q | | | | |
| Update MD Enterprise IM/IT Program Plan | | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q | 1Q-4Q |
| Complete DOJ Section 58 Survey | | 1Q | 1Q | 1Q | 1Q | 1Q | 1Q |
| 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 | 1Q,2Q,3Q,4Q |
| Coordinate FISMA review, inspection, audit | 2Q | 2Q | 2Q | 2Q | 2Q | 2Q | 2Q |
| Manage the SW Asset Management Program | | 1Q | | | | | 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 | 3Q |
| Submit GPEA Report | 3Q | 3Q | 3Q | 3Q | 3Q | 3Q | 3Q |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| 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 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|---|---|
| 0602 Program-Wide Support | 0 | 8,400 | 8,946 | 10,182 | 10,136 | 10,771 | 11,212 |
| RDT&E Articles Qty | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: Transferred in from the Ballistic Missile Defense System Segment Program Element 0603880C.*

**A. Mission Description and Budget Item Justification**

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

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

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

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

Note that these funds are allocated across multiple Program Elements in accordance with the Fiscal Year 1996 Authorization Act, which directed these funds be allocated to the programs being supported rather than managed from a single source. This structure often makes it difficult to level-fund all PE's while maintaining an orderly fiscal structure for executing the individual Program-Wide Support efforts.

**B. Accomplishments/Planned Program**

| | FY 2003 | FY 2004 | FY 2005 |
|---|---|---|---|
| Civilian Salaries and Support | 0 | 8,400 | 8,946 |
| RDT&E Articles (Quantity) | | | |

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

Management Support:
Funds the contract SETA support costs directly associated with Missile Defense Agency program-wide support organizations. This effort provides the funding for the Missile Defense Agency's executing agents (Army Space and Missile Defense Command, Army PEO-AMD, Air Force, and Navy) including government salaries & benefits, SETA support, and various management/overhead costs.

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

Fiscal Requirements:
This effort funds various requirements at the Missile Defense Agency, to include accounting services, special termination costs foreign currency fluctuations, and charges from cancelled appropriations.

IM/IT Operations:
This effort pays for Information Management/Information Technology requirements within the Missile Defense Agency. These requirements are moved to the Management Headquarters Program Element in Fiscal Years 2004-2009

**C. Other Program Funding Summary**

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0603175C Ballistic Missile Defense Technology | 151,217 | 225,268 | 204,320 | 199,468 | 246,291 | 286,286 | 305,365 | Continuing | Continuing |
| PE 0603869C Meads Concepts - Dem/Val | 101,754 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603879C Advanced Concepts, Evaluations and Systems | 0 | 149,993 | 256,159 | 229,512 | 232,463 | 231,583 | 224,626 | Continuing | Continuing |
| PE 0603880C Ballistic Missile Defense System Segment | 1,028,016 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0603881C Ballistic Missile Defense Terminal Defense Segment | 134,093 | 874,527 | 937,748 | 993,048 | 1,117,657 | 570,000 | 410,324 | Continuing | Continuing |
| PE 0603882C Ballistic Missile Defense Midcourse Defense Segment | 3,056,035 | 3,744,066 | 4,404,335 | 3,067,800 | 3,087,147 | 1,881,298 | 1,802,257 | Continuing | Continuing |
| PE 0603883C Ballistic Missile Defense Boost Defense Segment | 705,643 | 617,270 | 492,614 | 555,667 | 611,736 | 473,602 | 455,961 | Continuing | Continuing |
| PE 0603884C Ballistic Missile Defense Sensors | 327,013 | 425,421 | 591,957 | 790,265 | 1,453,679 | 1,122,189 | 1,232,893 | Continuing | Continuing |
| PE 0603886C Ballistic Missile Defense System Interceptors | 0 | 117,719 | 511,262 | 1,118,599 | 1,717,480 | 2,196,531 | 2,449,322 | Continuing | Continuing |
| PE 0603888C Ballistic Missile Defense Test and Targets | 0 | 635,782 | 716,427 | 673,476 | 656,152 | 654,015 | 688,119 | Continuing | Continuing |
| PE 0603889C Ballistic Missile Defense Products | 0 | 305,309 | 418,608 | 421,049 | 445,971 | 456,339 | 469,621 | Continuing | Continuing |
| PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD | 887,616 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |

| MDA Exhibit R-2A RDT&E Project Justification | Date: February 2004 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)** | R-1 NOMENCLATURE: **0603890C Ballistic Missile Defense System Core** |

| | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD | 138,922 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0605502C Small Business Innovative Research - MDA | 138,791 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| PE 0901585C Pentagon Reservation | 7,432 | 14,327 | 13,884 | 12,958 | 12,850 | 13,158 | 13,476 | Continuing | Continuing |
| PE 0901598C Management Headquarters - MDA | 35,331 | 92,449 | 141,923 | 146,099 | 145,112 | 151,727 | 154,583 | Continuing | Continuing |