MDA Exhibit R-2 RDT&E Budget Item Justification		Date **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**		R-1 NOMENCLATURE **0603889C Ballistic Missile Defense Products**

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	0	305,309	418,608	421,049	445,971	456,339	469,621
0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004	0	116,564	154,001	0	0	0	0
0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006	0	26,677	58,152	186,379	200,056	0	0
0901 Command and Control, Battle Management and Communications (C2BMC) Block 2008	0	373	10,798	33,924	40,444	242,712	246,312
0702 Hercules Block 2004	0	17,959	0	0	0	0	0
0802 Hercules Block 2006	0	19,252	38,188	37,521	37,496	0	0
0902 Hercules Block 2008	0	18,589	45,898	45,096	45,066	83,881	85,319
0703 Joint Warfighter Support Block 2004	0	23,865	12,887	0	0	0	0
0803 Joint Warfighter Support Block 2006	0	0	11,817	25,607	13,300	0	0
0903 Joint Warfighter Support Block 2008	0	0	0	0	13,299	30,648	32,759
0204 Joint National Integration Center (JNIC)	0	66,554	70,670	72,177	75,691	76,906	81,118
0602 Program-Wide Support	0	15,476	16,197	20,345	20,619	22,192	24,113

Note: Funding for this effort was previously captured under the Ballistic Missile Defense System Segment Program Element (PE 0603880C).

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.

The Ballistic Missile Defense (BMD) Products Program Element (PE) provides the resources to define, integrate, test, demonstrate, activate and evolve the multi-layered BMDS capable of defending the United States, deployed forces, friends, and allies. The BMD Products mission is comprised of four primary projects: C2BMC, Joint Warfighter, Joint National Integration Center and Hercules. A single, integrated layered Ballistic Missile Defense System (BMDS) will be acquired through the employment of the Missile Defense National Team for C2BMC (MDNTB) which is developing, verifying, installing, activating and supporting BMDS level C2BMC designs and products for all ground, sea, air and space based elements through the use of models and the BMDS Test Bed.

The operational C2BMC element will integrate BMD information from numerous sources and provide the SECDEF and COCOMs with an integrated picture of the BMD battlespace. Furthermore, the operational C2BMC element will provide global warning of a potential ballistic missile launch to the SECDEF, COCOMs, and BMD weapons. In response to an emerging ballistic missile threat from a potential adversary, Strategic Command (USSTRATCOM) in collaboration with the other COCOMs can employ the C2BMC to develop courses of action and associated resource allocations to negate the emerging ballistic missile threat. The C2BMC provides USSTRATCOM and the other COCOMs the deliberate planning tools and crisis action tools to evolve courses of action based upon a common view of the threat, available global BMD resources, and warning order objectives.

The success or failure of the BMDS Battle Manager will determine the success or failure of the BMDS with respect to the achievement of the selected engagement sequences. The BMDS Battle Manager must identify, track, and direct weapons towards targets whose characteristics may not be known with certainty until the moment of battle. The BMDS Battle Manager will include the following key characteristics: (1) a globally-distributed network, (2) an operational battlespace that includes land, sea, air, and space, (3) capability to address multiple targets that can threaten a

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RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

specific theater of operations or region of the world, (4) management of concurrent battlespace activities, (5) some level of automated decision making regarding the release or hold of lethal weapons, and (6) stringent requirements for high levels of trustworthiness of the systems that provide BMD capabilities due to the quality of the threats.

A Missile Defense National Team for C2BMC (MDNTB) was assembled to assist MDA with this project. The MDNTB, consists of MDA government civilian and military personnel, a defense contractor team (MDNTB (I)), Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC) and Scientific Engineering and Technical Assistance (SETA) providers, and develops, integrates, installs, activates and supports the flexible integrated BMDS C2BMC.

Project Hercules contributes to the BMDS C2BMC Element by providing advanced sensor netting and Battle Manager algorithms that will be integrated into the BMDS C2BMC Element and into BMDS sensor elements. This is a national effort to develop robust detection, tracking, and discrimination algorithms to counter off nominal and evolving missile threats. Hercules is also developing a physics-based Decision Architecture that applies advanced decision theory to future BMDS command, control, and battle management (C2BM) concepts. In addition to a general program to develop algorithms useful against targets in all phases of flight, Hercules has specific projects to develop algorithms for forward based sensors, the Decision Architecture, and mitigating countermeasures. Hercules develops algorithms to enhance BMDS element capabilities in Block 06, 08 and beyond and will provide these algorithms to the BMDS elements for insertion into their respective programs.

The Deputy for Force Structure Integration and Deployment (TR) works with the Combatant Commanders, Services and Joint Staff through workshops, seminars, tabletops, wargames, and exercises to add the operational layer onto the Initial Defensive Capability activated by the C2BMC project and evolve it into the Initial Defensive Operational (IDO) capability. Through interaction, areas of improvement in BMD capability are identified for action. This project also supports planning initial defensive operations, assessing, monitoring, and supporting the BMDS, transition, BMDS capabilities to Combatant Commanders and Service component commands, integration of USSTRATCOM/USNORTHCOM in required wargames, tabletop exercises, experiments, and System Integrated Tests and Hardware in the Loop Tests required for enhanced use of the JNIC to develop operational concepts and improve BMDS performance.

The Joint National Integration Center (JNIC) operates and maintains concurrent testing and operations centers for the C2BMC and Ground-based Midcourse Defense elements of the Ballistic Missile Defense System (BMDS). It provides technical capabilities and expertise in a dedicated and adaptable environment that enables developers, testers, and operators to evolve, assess and quickly deliver the capabilities required to field a viable BMDS. The JNIC operates as the field-operating activity for MDA in Colorado Springs, CO. The JNIC consists of a highly secure research and development building and a consolidated support facility totaling almost a million square feet. It provides MDA with worldwide secure communications connectivity throughout the missile defense community. The JNIC is the premier missile defense BMC3 integration and interoperability facility, as well as a modeling & simulation center. Beginning with IDC, and extending through Blocks 04, 06, 08 and beyond, the JNIC will be a "Host Center Services provider" for both BMDS RDT&E and real-world operations. Host Center Services include:

 - JNIC support to the GMD Mission Control Center Facility (MCCF) and the GMD Fire Control/Communications (GFC/C) Mission Operations Center (GMOC).
 - Operational support and connectivity of the C2BMC Integration and Test Center (BITC), and the C2BMC Experimentation Laboratory (X-Lab).
 - Development and support of the BMDS Operations Center (BOC) and the Backup MDA Operations Center (BMOC).
 - Infrastructure support of the Satellite Tracking and Surveillance System (STSS) Operations Center, Near Field Infrared Experiment (NFIRE), JNIC Mission Operations Center (JMOC), and sensor netting Test Bed.
 - Development and support of a common satellite ground station for designated BMDS elements.
 - Operation of the BMD Network Operations and Security Center (NOSC) for the MDA enterprise.

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

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B. Program Change Summary	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004 PB)	0	343,644	384,763
Current President's Budget (FY 2005 PB)	0	305,309	418,608
Total Adjustments	0	-38,335	33,845
Congressional Specific Program Adjustments	0	-35,000	0
Congressional Undistributed Adjustments	0	-3,335	0
Reprogrammings	0	0	33,845
SBIR/STTR Transfer	0	0	0

Funding for this effort was previously captured under the Ballistic Missile Defense System Segment Program Element (PE 0603880C).

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603889C Ballistic Missile Defense Products**

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004	0	116,564	154,001	0	0	0	0
RDT&E Articles Qty	0	9	7	0	0	0	0

Note: - Beginning in FY 2004, funding for this project transitioned from BMD Systems Program Element (PE) (0603880C-Project 1010) to the Ballistic Missile Defense Products PE (0603889C-Project 0701).
- Beginning in FY 2005, all funding except for government salaries transitioned from BMD System Core PE (0603890C-Project 0201) to the BMD Products PE (0603889C-Project 0701).
- Beginning FY 2005, FFRDC and SETA funding transition into the C2BMC Element program section description.

A. Mission Description and Budget Item Justification

The current joint operational Command and Control (C2) systems do not provide critical Ballistic Missile Defense (BMD) capabilities such as global situational awareness of the BMD battlespace, deliberate planning for global BMD, crisis action planning for global BMD, and global early warning of a ballistic missile attack to the Combatant Commanders (COCOMs), Service components, and BMD weapons. In response to these BMD gaps, the Command, Control, Battle Management, and Communications (C2BMC) element of the BMD System (BMDS) will provide global planning for BMD, global monitoring of the BMD battlespace, and execution of the BMDS.

In FY04, the initial BMD C2 capabilities of the C2BMC will include global situation awareness of the BMD battlespace and early warning of a ballistic missile attack on the homeland. The operational C2BMC element will integrate BMD information from numerous sources and provide the SECDEF and COCOMs with an integrated picture of the BMD battlespace. Furthermore, the operational C2BMC element will provide global warning of a potential ballistic missile launch to the SECDEF, COCOMs, and BMD weapons.

In FY05, the BMDS program will provide initial capabilities with the fielding of the C2BMC that address the BMD C2 voids for the Secretary of Defense (SECDEF) and the COCOMs. In response to an emerging ballistic missile threat from a potential adversary, US Strategic Command (USSTRATCOM) in collaboration with the other COCOMs can employ the C2BMC to develop courses of action and associated resource allocations to negate the emerging ballistic missile threat. The C2BMC provides USSTRATCOM and the other COCOMs a deliberate planning capability and crisis action planning capability to evolve courses of action based upon a common view of the threat, available global BMD resources, and warning order objectives. Additionally, USSTRATCOM can use the C2BMC to adjudicate duplicate resource allocations.

The fulfilling of the stated BMD C2 voids requires a global communications infrastructure that provides the seamless and secure transfer of information throughout the BMD battlespace. To that end, the C2BMC element will include a fire control network that allows the developed track information in the Pacific theater to be rapidly transported to the Ground-based Midcourse Defense (GMD) element to support the engagement sequences that are critical for the defense of Hawaii and Alaska. The C2BMC element will provide the communications infrastructure required to transport track data to the SECDEF and COCOMs for situational awareness of the BMD battlespace.

The C2BMC element will provide voice communications infrastructure that provides secure voice communications to the COCOMs, Service components, and BMD weapons. Finally, the C2BMC element will provide the communications infrastructure that supports the transport of BMD planning information among the SECDEF, COCOMs, Service components, and BMD weapons.

The Block 2004 C2BMC Element is defined and implemented in a spiral process that consists of five spirals (Spirals 4.1 - 4.5) and the installation of C2BMC Suites, hardware and communications connectivity, at Combatant Commander sites, Theater and Regional communications gateways, and satellite nodes such as the National Capital Region. Each spiral and C2BMC Suite upgrade represents an improvement in capability and functionality over the previous spiral and installation.

FY 2004 features the development and fielding of Spiral 4.2 and Spiral 4.3; the installation and activation of C2BMC Suites at USSTRATCOM and USNORTHCOM; the installation and activation of one Regional Communications Node and one Theater Communications node; the installation and activation of Remoted Workstations at Peterson AFB and at the MDA Operations Center (MOC); and the installation and activation of Web Browser capabilities at USPACOM (Camp Smith) and the National Capital Region (NCR). Concurrent with these efforts is the development and

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implementation of BMDS training of the Combatant Commanders (COCOMs), the development and implementation of Logistics and Maintenance for the BMDS C2BMC Element, and the development of initial Operations and Support to the COCOMs.

FY 2005 will see the development and fielding into the BMDS C2BMC Element of Spirals 4.4 and 4.5; the upgrading of the Peterson AFB Remoted Workstations to a full C2BMC Suite; the installation and activation of a full C2BMC Suite at PACOM; and the upgrading of the NCR Web Browser capability to Remoted Workstations. Training of the COCOMs will continue as the complexity of the BMDS mission increases with each new spiral release, and with each new C2BMC Suites and upgraded suite added to the BMDS C2BMC Element. Logistics and Maintenance for the C2BMC Element will continue for existing and new C2BMC Suites.

The BMDS C2BMC Element is developed with the assistance of the Missile Defense National Team for C2BMC (MDNTB) which is composed of an industry team led by Lockheed Martin Mission Systems ((MDNTB(I)); Federally Funded Research and Development Centers (FFRDC); Scientific, Engineering and Technical Assistance (SETA) partners.

MDNTB(I) is designing, building, integrating, testing, and demonstrating a Block 2004 BMDS C2BMC capability possessing military utility and operational usefulness. This C2BMC capability shall be represented in developed, reuse, and Commercial-Off-The-Shelf (COTS) / Government-Off-The-Shelf (GOTS) software executing on hardware that integrates with appropriate communications networks and Command Center environments. MDNTB(I) has organized its executable product development into seven product areas covering C2, BM, and Communications:
 - C2:
   -- Infrastructure: Inter-process communications, database structure and data access facilities, security services, COTS configuration and integration, data synchronization, web browser links.
   -- Situational Awareness: Display of BMDS-relevant data (e.g., Element locations and status, object tracks and characteristics, system states and modes) on the Human-Machine Interface (HMI) displays
   -- Planning: Deliberate and crisis action planning, including review of Rules of Engagement (ROEs), Defense Design generation, and creating and dissemination of BMD operational plans
   -- Message Processing: Receipt, parsing, and storage of pertinent data elements from messages on each interface.
 - BM:
   -- Threat/Track Processing: Operations on tracks and related data (e.g., state vectors, track quality metrics, features, etc.) to identify or estimate characteristics of the corresponding objects in space.
   -- Engagement Processing: Evaluation of the threat (e.g., threatened area, missile classification, threat priority), engagement planning to include engagement feasibility assessments, engagement coordination across Elements, and engagement status up to and after the predicted intercept event.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
C2BMC ELEMENT		52,847	76,347
RDT&E Articles (Quantity)		2	2

RDT&E Articles
 - FY 2004: BMDS C2BMC Element Spirals 4.2 and 4.3
 - FY 2005: BMDS C2BMC Element Spirals 4.4 and 4.5

This section addresses the software component of the BMDS C2BMC Element's spiral development. It explains the tasks performed by the MDNTB(I) that is engineering and design, specifications development, software coding, integrating and testing, and performing the system-level test for each software spiral, as well as the tasks performed by the Services and various Agencies in support of the BMDS C2BMC Element.

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APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

FY2003 Accomplishments:
-Engineering
  -- IDO Engineering, Design and Specifications development complete
  -- Post-IDO (Block 04) Engineering, Design and Specifications Development underway
-C2BMC Suite Development
  -- Spiral 4.1: Completed
  -- Spiral 4.2: In Element Testing at JNIC
  -- Spiral 4.3 (IDO load): Planning, requirements, and design quality points complete
-Communications
  -- IDO BMDS Communications Network design completed
  -- Theater and Regional Communication Gateways Established
  -- Communications-Electronics Annex to Operational Order/Operational Plan (Draft Annex K) completed
-Site Activation
  -- USSTRATCOM Site Installation Plan signed
  -- USNORTHCOM Site Installation Plan signed
-Warfighter Integration
  -- Major exercise conducted with USSTRATCOM, USNORTHCOM and PACOM operators using actual C2BMC & GMD Command and Control systems

FY 2004 Planned Accomplishments:
Spiral 4.2 provides several significant improvements to BMDS Command and Control (C2):
 - Force Level Planning Capability that includes the following functionality:
   -- Deliberate and Contingency Campaign Planning capability with Assists in Automated Processes
   -- Defense Design Development that provides a Prioritized Defended Asset List (PDAL) for Terminal/Midcourse Systems and BMD Rules of Engagement (ROE) and Inventory Management
   -- BMD Planner Enhancements with Improved GUI and improved Joint Defensive Planner / EDA Integration
 - Increased Situational Awareness Capability that includes the following functionality:
   -- BMDS Summary Screen displayed on globe showing GMD Cluster Tracks and J Source Tracks
   -- Data Tables displaying Mission Summary and All Track Data information such as Track Information, GMD Engagement State, Missile Order of Battle, Homeland ROE, Current Defense Status, Weapons Control, and Attacker
 - Integrated Ballistic Missile Picture (IBMP) displaying missile launch and impact point prediction, detailed track data, threat priority, and assets at risk.

Spiral 4.3 built upon Spiral 4.2 and provides the following IDO capabilities:
 - Force Level Planning Capability is improved by:
   -- Merging Theater/COCOM BMD Plans to a Global Plan in the Defense Design Development
   -- Inserting several performance improvements in the GMD Planner
 - Situational Awareness Capability is improved by:
   -- Adding an "Only Representative Track with Associated GMD Cluster" to the BMDS Summary Screen Globe Display
   -- Completing Data Tables and adding "Estimated Intercept Time" and "Number of GBI Launch Per Target" data
   -- Adding an Internet Browser Accessibility functionality
 - Integrated Ballistic Missile Picture (IBMP) is improved by:
   -- Displaying Threat Fan

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- Adding Early Warning Alert Notification
  -- Adding BMDS Health and Status Display
  -- Displaying Engagement Status data

- Operate and upgrade the C2BMC-Experimental (C2BMC-X) environment at the JNIC to perform/support demonstrations, experiments (including technology insertions).

- Establish Global Command & Control System-Missile Defense (GCCS-MD) integration efforts with DISA, and develop and field GCCS-MD mission applications. Continue development and integration of the Joint Data Planner (JDP) into GCCS.

- Improve Early Warning capability by:
  -- Strategic missile launch messages to include initial launch report, observation reports, and state vector at boost burnout with covariance
  -- Simultaneous broadcast over TIBS/TDDS on theater event timelines.
  -- Improving launch event association

SBIRS-DSP Interface to BMDS:
MDA, through AFSPC and SMC, is providing an interface to the BMDS to supply ONIR information to GMD and C2BMC. The project is being delivered in two phases. IDC/Block 20004 (Phase 1) provides a stand alone capability at the SBIRS MCS, Buckley AFB (Back up at the IMCS-B in Boulder, CO) to provide status and alert messages as well as state vector information in BMDS required formats. The stand alone system will be manned by a contractor crew force under the direction of the SBIRS Crew Commander. Block 2006 (Phase 2) is described in Project 0801.

FY 2004 Planned Accomplishments:
- Stand alone capability
  -- Contract award
  -- Hardware and long lead items orders complete
  -- Assembly, test and checkout of the stand alone capability
  -- Communications connectivity between MCS, IMCS-B and JNIC established
  -- Hire and train contractor crew force
  -- Available for operations
  -- Participate in test activities with GFC and C2BMC

FY 2005 Planned Program:
- Integrated Capability
  -- Generate Test and Verification Plans
  -- Complete Operations, sustainment, and training planning efforts
  -- Perform maintenance and TO Verification

Planned BMDS Communications accomplishments include:
- Extend communications connectivity to new BMDS elements as they are brought into the BMDS system (specifically ABL and THAAD programs) and continue connectivity to remaining BMDS elements (i.e., remaining Patriot and Aegis units).
- Acquire, install, field, and test network and data management capabilities (i.e., Joint Network Management System (JNMS)) and integrate these functions across MDA elements, and with Integrated Network Management System (INMS) system used by DoD per Joint Network Concept of Operation.

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- Acquire, install, and test communications equipment and provide operations and sustainment of installed BMDS equipment until system transition to support additional C2BMC fielding activities including logistic spares and leased communications connectivity between BMDS locations.
- Acquire and field tactical communications packages (including USC-60A satellite terminals, JRE Gateways, and tactically configured network components) to globally support rapid BMDS deployments.
- Continued development of the Joint Range Extension (JRE) capability and fielding of JRE Gateways. JRE Gateways are needed for interoperability between tactical data networks and Internet Protocol (IP) based fixed communications networks. This item includes joint certification of the JRE Gateway equipment.
- Update MIL-STD-3011 based on lessons learned from operational deployments and BMDS system testing, to include interoperable test tool for interoperability certification.

FY 2005 Planned Program:
Spirals 4.4 and 4.5 shall feature the implementation of track forwarding between communication networks serving the BMDS and the implementation of corresponding Reporting Responsibility (R2) rules. This capability will promulgate BMDS-wide situational awareness and enable precision cueing and sharing of threat track data between BMDS Elements on different networks, enhancing sensor tracking performance and ultimately providing an opportunity for improved engagement performance. This capability will present the war fighter with BMDS Planning Capabilities, BMDS Situational Awareness, provide access to Intelligence Data, provide enhanced Early Warning Capabilities, and enhanced Communications. Specifically:

- Planning capabilities: Defense Design Between COCOMs; Ability to merge defense designs into global plan; Improved planning tool performance and user interface
- Situational Awareness: Display and manual updates capability of operational status for each BMD resource; Display of weapon and sensor status for each threat; Monitoring of BMD Resources SIPRNET access and web browser capability for Summary Screen
- Access to intelligence data through GCCS I3
- Data synchronization of threat tracks between C2BMC Suites
- Enhanced Track Display
- Continue improvements to Early Warning capabilities:
  -- Strategic missile launch messages to include initial launch report, observation reports, and state vector at boost burnout with covariance
  -- Simultaneous broadcast over TIBS/TDDS on theater event timelines
  -- Improving launch event association

- Continue to operate and upgrade the C2BMC-Experimental (C2BMC-X) environment at the JNIC to perform and support demonstrations, experiments (including technology insertions.

- Establish Global Command & Control System-Missile Defense (GCCS-MD) integration efforts with DISA, and develop and field GCCS-MD mission applications. Continue development and integration of Joint Data Planner into GCCS.

- Continue to improve Early Warning capabilities by:
  -- Improving launch event association
  -- Strategic missile launch messages to include initial launch report, observation reports, and state vector at boost burnout with covariance

Planned FY 2005 BMDS Communications Program includes:
- Extend communications connectivity to new BMDS elements as they are brought into the BMDS system (specifically ABL and HAD programs) and continue connectivity to remaining BMDS elements (i.e., remaining Patriot and Aegis units).
- Acquire, install, field, and test network and data management capabilities and integrate these functions with Integrated Network Management System (INMS) system used by DoD per Joint Network Concept of Operation.

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004   MDA Exhibit R-2A (PE 0603889C)

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603889C Ballistic Missile Defense Products**

- Acquire, install, and test communications equipment and provide operations and sustainment of installed BMDS equipment until system transition to support additional C2BMC fielding activities including logistic spares and leased communications connectivity between BMDS locations.
- Update MIL-STD-3011 with additional message protocols based on lessons learned from operational deployments and BMDS system testing, to include interoperable test tool for interoperability certification.
- Acquire and field tactical communications packages (including USC-60A satellite terminals, JRE Gateways, and tactically configured network components) to globally support rapid BMDS deployments.

	FY 2003	FY 2004	FY 2005
C2BMC SITE ACTIVATION		13,426	15,371
RDT&E Articles (Quantity)		7	5

RDT&E Articles
- FY 2004: two C2BMC Suites; two Remoted C2BMC Workstations; 1 Web Browser Workstation; one Theater Communications Gateway Node and one Regional Communications Gateway Node.
- FY 2005: two C2BMC suites; one Remoted C2BMC Workstation; Upgrades to Theater/Regional Gateways

Site Activation efforts address fielding of the C2BMC Suites (both full and remote configurations), fielding supporting Communications Gateways, and fielding web browser based C2BMC nodes. This activity consists of two primary tasks:
- Planning for and installing C2BMC Components at selected fielding sites
- Providing Activation Support such as equipment procurement, staging and inventory control

Site Planning and Design: this task includes up to three (3) site surveys per site to determine site specific engineering, activation, installation, training, communications and information assurance issues; the development and publishing of Site Activation Plans (SIPs) and Site Installation Documents (SIDs). Site Installation: activities include appropriate prerequisites that must be completed prior to installation, such as mutual agreement on the SIP and SID, development of a Site Test Plan (STP) for each site, and technical accreditation completed and approved. C2BMC equipment shall then be installed per the SID and checked-out per the STP. This is followed by a User Verification Test and training.

Activation Support: this task includes the procurement of hardware, software and services directly tied to the C2BMC Suites, Workstations and Communications Gateways. Prior to installation at the designated operational site, all C2BMC Suite equipment is staged and assembled at an off-site to verify configuration, perform software and systems checks and "burn-in" of the system. The C2BMC Suite, workstations or Communications Gateways equipment is then disassembled and shipped to its final operational destination. This process includes a rigorous inventory control program.

FY 2004 Planned Accomplishments:
- USNORTHCOM:
  -- A full C2BMC Suite installed and activated at the JNIC Operations Center.
  -- Workstations remoted from the full JNIC C2BMC Suite installed and activated at HQ USNORTHCOM (Peterson AFB) to provide IDO Planning and Collaboration Capability.
  -- Workstations remoted from the full JNIC C2BMC Suite installed and activated at the Cheyenne Mountain Operations Center (CMOC) to provide IDO Situational Awareness and C2 Capability.
- USSTRATCOM: A full C2BMC Suite installed and activated at USSTRATCOM to provide IDO Situational Awareness, Planning, Collaboration and C2 Capability.
- COMMUNICATIONS GATEWAYS: a Regional Gateway and a Theater Gateway installed and activated with Joint Range Extension (JRE) and communications node equipment. These Gateways provide communications links for relaying Theater and Regional BMDS data to the CONUS BMDS.
- BMDS SUPPORT COORDINATION CENTER (BSCC): Workstations remoted from the full JNIC C2BMC Suite installed and activated at the BSCC. The BSCC provides BMDS Health and Status data to MDA HQ as well as an IDO Situational Awareness Capability.

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004   MDA Exhibit R-2A (PE 0603889C)

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

- PACOM: Camp Smith at PACOM configured for Collaboration Capability with web browser access. PACOM will perform functions of IDO Collaboration with USNORTHCOM, and USSTRATCOM.

Planned FY 2005 Program
- NATIONAL CAPITAL REGION: Install and activate BMDS C2BMC display screens for Summary Status and Situational Awareness to the White House Situation Room, SecDef Executive Support Center and the National Command Center.
- USNORTHCOM: Upgrade the HQ USNORTHCOM (Peterson AFB) from remoted workstations to a full C2BMC Suite
- PACOM: Upgrade the PACOM Camp smith IDO web browser capability to a full C2BMC Suite.

	FY 2003	FY 2004	FY 2005
LOGISTICS AND MAINTENANCE SUPPORT		14,615	29,490
RDT&E Articles (Quantity)			

Logistics and Maintenance services consist of On-Site Support, Help Desk activities and hardware/software maintenance.

On-Site Support: provided to assist the System Administrator assigned by the site (e.g. COCOM) with the general operational support of the C2BMC system, integration of the C2BMC support processes into the site's support regimen, and daily operational support for the C2BMC system as part of a transition plan. MDNTB(I) personnel provide "over-the-shoulder" support to users when requested, or alternatively, contact the Help Desk for support.

Help Desk: located in Colorado Springs, CO, the Help Desk shall provide technical support to onsite personnel and to the C2BMC end-user; review of hardware/software problems and coordination of COTS developer/vendor service calls; trouble ticket work-off; and tracking and implementing documented escalation procedures; collection of metrics; and, maintenance of the Help Desk website. This service will be delivered on a 24x7x365 basis.

Maintenance: maintenance of the C2BMC Element covers both software and hardware maintenance and will be delivered by the MDNTB(I). The goal is to maintain the BMDS C2BMC at a pre-determined availability. Software maintenance support will be based on the use of Help Desk personnel who will field incoming trouble calls and request software engineering support as required. Scheduled (preventative and non-critical remedial) and unscheduled hardware maintenance issues will be managed by the MDNTB(I) as appropriate.

FY 2004 Planned Accomplishments:
  - Provided CLS services to the following C2BMC sites: USNORTHCOM (JNIC), USSTRATCOM, Regional Gateway, Cheyenne Mountain Ops Center (CMOC), BSCC, Peterson AFB, Theater Gateway and the NCR.
  - Support consisted of hardware maintenance, software maintenance, GFE maintenance for JRE units (JNIC, USSTRATCOM, both Gateways, CMOC, BSCC, Peterson AFB)
- Support was provided by MDNTB(I) personnel on-site 24x7

  - Help Desk: the BMDS C2BMC Element Help Desk was developed, installed, activated and manned by MDNTB(I) personnel at the JNIC.

FY 2005 Planned Program:
  - Continue providing CLS services to existing C2BMC sites: USNORTHCOM (JNIC), USSTRATCOM, Regional Gateway, Cheyenne Mountain Ops Center (CMOC), BSCC, Peterson AFB, Theater Gateway and the NCR.
  - Provide O&S services to new and/or upgraded C2BMC Sites: Peterson AFB, PACOM, and NCR.

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004

MDA Exhibit R-2A (PE 0603889C)

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

- Support consisted of hardware maintenance, software maintenance, GFE maintenance for JRE units (JNIC, USSTRATCOM, both Gateways, CMOC, BSCC, Peterson AFB)
- Support is provided by MDNTB(I) personnel on-site 24x7

- Help Desk: the BMDS C2BMC Element Help Desk was developed and established at the JNIC

	FY 2003	FY 2004	FY 2005
C2BMC INTEGRATION, TEST, EXPERIMENTATION AND OPERATION		20,939	32,793
RDT&E Articles (Quantity)			

The Joint National Integration Center (JNIC) is host to three C2BMC Spiral Integration & Testing Laboratories (BITCs), and the C2BMC-Experimental Laboratory (C2BMC-X). The following capabilities and functions located at the JNIC support the MDNTB(I)'s development of the BMDS C2BMC Element:

- Integration and test of C2BMC software Spiraling delivered from the MDNTB(I) Development Team to the MDNTB(I) I&T Team.
- C2BMC experimentation supported by Broad Area Announcements for independently developed software which may have applications in the BMDS
- Operational Support to the USNORTHCOM C2BMC Suite located at the JNIC
- C2BMC Operations & Maintenance, Licenses and Upgrades for the BITC and C2BMC-X laboratories.

FY 2004 Planned Accomplishments include:
- Providing BMDSS ICRDC DO support to the BITC labs
- Development of the Test Environment and the C2BMC Test Article Simulation Environment
- Development of BMDS C2BMC Concept of Operations by the Operational Concept Team
- Build-out of the BITC-3 Laboratory for Spiral 4.3
- Run full schedule of C2BMC-X Events and Experimentation
- Full development and Activation of the JNIC Ops Center
  -- Build-out of OPS Center with Spiral 4.3 Suite
  -- USNORTHCOM Remote workstations
  -- Ops and maintenance support
- HW and SW maintenance and upgrades for BITC labs

FY 2005 Planned Program include:
- Continue BMDSS ICRDC DO support to the BITC labs
- Upgrade Test Environment and the C2BMC Test Article Simulation Environment
- Continue Operational Concept Team project
- Upgrade CNE for BITC Lab Spiral 4.3
- Continue full schedule of C2BMC-X Events and Experimentation
- Continue ops and maintenance of JNIC Ops Center
- Add new Communications and Connectivity, C4I Tools

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004   MDA Exhibit R-2A (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products

	FY 2003	FY 2004	FY 2005
FEDERALLY FUNDED RESEARCH DEVELOPMENT CENTERS (FFRDC)		6,336	
RDT&E Articles (Quantity)			

Starting FY 2005, this support is captured in the C2BMC Element Project.

Federally Funded Research Development Centers (FFRDC) personnel provide highly technical support across nearly every discipline necessary to develop, integrate and test, and activate the BMDS C2BMC Element. Specifically, FFRDC personnel assist in the specialized engineering of Temporal Logic forming the foundation of the BMDS Battle Manager, provide expertise in Consequence Management, assist with Technical Performance Measures (TPMs) and the MDA Statement of Goals (SOG), assist the MDNTB(I) with other BMDS Elements' interface specifications to the C2BMC Element, and provide critical BMDS Communications expertise.

	FY 2003	FY 2004	FY 2005
Scientific, Engineering and Technical Assistance (SETA)		8,401	
RDT&E Articles (Quantity)			

Starting FY 2005, this support is captured in the C2BMC Element Project.

SETA personnel provide essential technical and programmatic support for the development of the C2BMC Element. Specifically:
- BMDS Communications support with special emphasis on ongoing JRE development and deployment, communications interoperability across BMDS Elements, BMDS IA/CND efforts, and development of Theater & Regional Communications Sites.
- C2BMC System Engineering support activities, such as ICWG/CCB support, XML Registry, Spectrum Management, NATO C2BMC Interoperability.
- Programmatic Support such as PPBE, IMP, IMS, Site Activation, Acquisition Strategy and Documentation, Common Cost Modeling, C2BMC CARD, Cost Research & Analysis.
- C2BMC Prototype Development such as Early Warning Support, GCCS Support, and BMDS Benchmark support.
- C2BMC Element Test Support such as participation in BMD System Level Testing events.

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

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004   MDA Exhibit R-2A (PE 0603889C)

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

APPROPRIATION/BUDGET ACTIVITY				R-1 NOMENCLATURE				
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				**0603889C Ballistic Missile Defense Products**				

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
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 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	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

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 Initial Defensive Capability 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; spiral 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)).

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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 **0603889C Ballistic Missile Defense Products**			

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
C2BMC ELEMENT										
C2BMC HW/SW Development, I&T	SS/CPAF	MDNTB/ Col. Springs, Co		16,252	1Q	24,428	1Q		40,680	
C2BMC HW/SW Development, I&T	SS/CPAF	MDNTB/ Huntsville, Ala		6,600	1Q	7,130	1Q		13,730	
C2BMC Element Engineering & Specifications Development	SS/CPAF	MDNTB/ Washington, DC		13,550	1Q	12,319	1Q		25,869	
C2BMC Element Communications Network Development	SS/CPAF	MDNTB/ Washington, DC		2,351	1Q	3,575	1Q		5,926	
C2BMC Element Modeling & Simulation	SS/CPAF	MDNTB/ Washington, DC		3,960	1Q	4,125	1Q		8,085	
EW/CEW; GCCS; JDP; JRE; ISC2; SBIRS-DSP; PATRIOT-JTAGS		Services, DISA, Agencies/ Various		10,134	1Q	24,770	1Q		34,904	
C2BMC SITE ACTIVATION										
C2BMC Suites and Comms Gateways	SS/CPAF	MDNTB(I)/ Various COCOMs		13,426	1Q	15,371	1Q		28,797	
LOGISTICS AND MAINTENANCE SUPPORT										
CLS, Operations Support, COCOM Training	SS/CPAF	MDNTB(I)/ Various COCOMS		14,615	1Q	29,490	1Q		44,105	
C2BMC INTEGRATION, TEST, EXPERIMENTATION AND OPERATION										
BCD Personnel	C/FFP	IDA, SRS Technologies/ Colorado Springs, CO		1,928	1Q	2,595	1Q		4,523	
C2BMC Integration & Test	C/FFP	Northrup Grumman Mission Sys/ Colorado Springs, CO		16,560	1Q	17,787	1Q		34,347	

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004

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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 **0603889C Ballistic Missile Defense Products**

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
C2BMC Experimentation	C/FFP	Northrup Grumman Mission Sys/ Colorado Springs, CO		774	1Q	7,740	1Q		8,514	
C2BMC Ops & Maintenance	C/FFP	Northrup Grumman Mission Sys/ Colorado Springs, CO		1,677	1Q	2,861	1Q		4,538	
C2BMC Operational Support	C/FFP	Northrup Grumman Mission Sys/ Colorado Springs, CO				1,810	1Q		1,810	
FEDERALLY FUNDED RESEARCH DEVELOPMENT CENTERS (FFRDC)										
C2BMC Element	SS/CPAF	MITRE, IDA, ORL/ Washington, DC		6,336	1Q				6,336	
Scientific, Engineering and Technical Assistance (SETA)										
C2BMC Element	SS/CPFF	Sparta/CSC/ MDA HQ, Arlington, VA		8,401	1Q				8,401	
Subtotal Product Development			0	116,564		154,001		0	270565	

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

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004   MDA Exhibit R-3 (PE 0603889C)

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			Date
MDA Exhibit R-3 RDT&E Project Cost Analysis			**February 2004**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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	116,564		154,001			270,565	

Remarks

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004

MDA Exhibit R-3 (PE 0603889C)

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	Date
MDA Exhibit R-4 Schedule Profile	**February 2004**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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
C2BMC Element																												
Spiral 4.1 Development																												
Spiral 4.1 Comm Development																												
Spiral 4.1 Integration & Testing																												
Spiral 4.1BMD System Level testing																												
Spiral 4.2 Development																												
Spiral 4.2 Comm Development																												
Spiral 4.2 Integration & Testing																												
Spiral 4.2 BMD System Level Testing																												
Spiral 4.3 Engineering																												
Spiral 4.3 Development																												
Spiral 4.3 C2BMC Type Accreditation																												
Spiral 4.3 Comm Development																												
Spiral 4.3 Integration & Testing																												
Spiral 4.3 BMD System Level Testing																												
Spiral 4.4 System Engineering																												

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004

MDA Exhibit R-4 (PE 0603889C)

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			Date
MDA Exhibit R-4 Schedule Profile			**February 2004**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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
C2BMC Element																												
Spiral 4.4 C2BMC Development						△—△																						
Spiral 4.4 Integration & Testing							△——△																					
Spiral 4.4 BMD System Level Testing									▽																			
Spiral 4.5 System Engineering			△————————△																									
Spiral 4.5 C2BMC Development								△—△																				
Spiral 4.5 Integration & Testing									△—△																			
Spiral 4.5 BMD System Level Testing										▽																		
Site Activation																												
BMDS C2BMC Comm Network			△——————————△																								
C2BMC Comms Gateways					△																							
USSTRATCOM C2BMC Comms							△																					
Aegis C2BMC Comms								△																				
JNIC			△————————△																									
JNIC Suite & Comm HW				▲																								
Operator & Maintainer Training			△————————△																								

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004

MDA Exhibit R-4 (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

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
Site Activation																												
IA Certification/Accreditation								△																				
JNIC Site Operational								△																				
US STRATEGIC COMMAND			△					△																				
USSTRATCOM Site Design			△			△																						
USSTRATCOM Suite & Comm HW				▲																								
USSTRATCOM Site Installation				△				△																				
Operator and Maintainer Trng				△				△																				
IA Certification & Accreditation								△																				
USSTRATCOM Operational								△																				
US NORTHERN COMMAND			△					△																				
USNORTHCOM Site Design			△			△																						
USNORTHCOM Suite & Comm HW				△																								
Installation, Checkout & Testing				△				△																				
Trng development & Delivery				△				△																				
USNORTHCOM Site Operational								△																				

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004

MDA Exhibit R-4 (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

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
Site Activation																												
IA Accreditation / Certification								△																				
NATIONAL CAPITAL REGION (NCR)					△—————△																							
NCR HW & Comm						△																						
NCR Operational							△																					
MDA Operations Center (MOC)					△—————△																							
MOC SIP					△																							
MOC SID						△																						
MOC Suite & Comm HW						△—△																						
MOC Installation & Checkout							△																					
MOC Operational							△																					
Regional/Theater Gateways Activation				△—————————△																								
Gateways Design					▲—▲																							
Gateways HW Procurement					▲																							
GWs Installation & Checkout					△—————△																							
GWs IA Accreditation & Certification							△																					

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004

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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 **0603889C Ballistic Missile Defense Products**

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
Site Activation																												
USNORTHCOM Site Upgrade									△—————△																			
USNORTHCOM Upgrade SIP										△																		
USNORTHCOM Upgrade SID										△																		
USNORTHCOM Upgrade HW Procurement											△																	
USNORTHCOM Upgrade HW Installation											△																	
USNORTHCOM Upgrade BMD System Level Testing											▽																	
PACOM Site Upgrade									△—△																			
PACOM Upgrade SIP									△																			
PACOM Upgrade SID									△																			
PACOM Upgrade HW Procurement									△																			
PACOM Upgrade Installation										△																		
PACOM Upgrade BMD System Level Testing										▽																		

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004

MDA Exhibit R-4 (PE 0603889C)

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				Date		
MDA Exhibit R-4A Schedule Detail				**February 2004**		

APPROPRIATION/BUDGET ACTIVITY				R-1 NOMENCLATURE		
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				**0603889C Ballistic Missile Defense Products**		

Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Composite Materials and Structures							
Order Circuits for Long Haul Comm	4Q						
C2BMC Element							
Spiral 4.1 Development	1Q-2Q						
Spiral 4.1 Comm Development	1Q-2Q						
Spiral 4.1 Integration & Testing	3Q-4Q						
Spiral 4.1BMD System Level testing	4Q						
Spiral 4.2 Development	1Q-4Q	1Q					
Spiral 4.2 Comm Development	1Q-4Q						
Spiral 4.2 Integration & Testing		1Q					
Spiral 4.2 BMD System Level Testing		1Q					
Spiral 4.3 Engineering	2Q-3Q						
Spiral 4.3 Development	4Q	1Q-2Q					
Spiral 4.3 C2BMC Type Accreditation		2Q					
Spiral 4.3 Comm Development	2Q-4Q	1Q-2Q					
Spiral 4.3 Integration & Testing		1Q-4Q					
Spiral 4.3 BMD System Level Testing		3Q,4Q					
Spiral 4.4 System Engineering	3Q-4Q	1Q					
Spiral 4.4 C2BMC Development		2Q-3Q					
Spiral 4.4 Integration & Testing		3Q-4Q	1Q				
Spiral 4.4 BMD System Level Testing			2Q				
Spiral 4.5 System Engineering	3Q-4Q	1Q-3Q					
Spiral 4.5 C2BMC Development		4Q	1Q				
Spiral 4.5 Integration & Testing			2Q-3Q				
Spiral 4.5 BMD System Level Testing			3Q				
Site Activation							
BMDS C2BMC Comm Network	3Q-4Q	1Q-4Q					
C2BMC Comms Gateways		2Q					
USSTRATCOM C2BMC Comms		3Q					
Aegis C2BMC Comms		4Q					
JNIC	3Q-4Q	1Q-4Q					

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004

MDA Exhibit R-4A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**					
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
JNIC Suite & Comm HW	4Q						
Operator & Maintainer Training	4Q	1Q-4Q					
IA Certification/Accreditation		4Q					
JNIC Site Operational		4Q					
US STRATEGIC COMMAND	3Q-4Q	1Q-4Q					
USSTRATCOM Site Design	3Q-4Q	1Q-2Q					
USSTRATCOM Suite & Comm HW	4Q						
USSTRATCOM Site Installation	4Q	1Q-4Q					
Operator and Maintainer Trng	4Q	1Q-4Q					
IA Certification & Accreditation		4Q					
USSTRATCOM Operational		4Q					
US NORTHERN COMMAND	3Q-4Q	1Q-4Q					
USNORTHCOM Site Design	3Q-4Q	1Q-2Q					
USNORTHCOM Suite & Comm HW		1Q					
Installation, Checkout & Testing	4Q	1Q-4Q					
Trng development & Delivery	4Q	1Q-4Q					
USNORTHCOM Site Operational		4Q					
IA Accreditation / Certification		4Q					
NATIONAL CAPITAL REGION (NCR)		1Q-3Q					
NCR HW & Comm		2Q					
NCR Operational		3Q					
MDA Operations Center (MOC)		1Q-3Q					
MOC SIP		1Q					
MOC SID		2Q					
MOC Suite & Comm HW		2Q-3Q					
MOC Installation & Checkout		3Q					
MOC Operational		3Q					
Regional/Theater Gateways Activation	3Q-4Q	1Q-4Q					
Gateways Design	4Q	1Q					
Gateways HW Procurement		1Q					
GWs Installation & Checkout		1Q-4Q					

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004   MDA Exhibit R-4A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
GWs IA Accreditation & Certification		4Q					
USNORTHCOM Site Upgrade			1Q-3Q				
USNORTHCOM Upgrade SIP			2Q				
USNORTHCOM Upgrade SID			2Q				
USNORTHCOM Upgrade HW Procurement			3Q				
USNORTHCOM Upgrade HW Installation			3Q				
USNORTHCOM Upgrade BMD System Level Testing			3Q				
PACOM Site Upgrade			2Q-3Q				
PACOM Upgrade SIP			2Q				
PACOM Upgrade SID			2Q				
PACOM Upgrade HW Procurement			2Q				
PACOM Upgrade Installation			3Q				
PACOM Upgrade BMD System Level Testing			3Q				

Project: 0701 Command and Control, Battle Management and Communications (C2BMC) Block 2004

MDA Exhibit R-4A (PE 0603889C)

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006	0	26,677	58,152	186,379	200,056	0	0
RDT&E Articles Qty	0	0	1	0	0	0	0

Note: - Beginning in FY 2004, funding for this project transitioned from BMD Systems Program Element (PE) (0603880C-Project 1010) to the Ballistic Missile Defense Products PE (0603889C-Project 0701).
- Beginning in FY 2005, all funding except for government salaries transitioned from BMD System Core PE (0603890C-Project 0201) to the BMD Products PE (0603889C-Project 0701).
- Beginning FY 2005, FFRDC and SETA funding transition into the C2BMC Element program section description.

A. Mission Description and Budget Item Justification

The current vision for C2BMC evolution calls for a shift from a BMDS Command and Control (C2) emphasis in Block 2004 to a BMDS Battle Management (BM) and sensor netting emphasis for Block 2006.

Battle Management comprises the decisions and actions executed in direct response to the activities of enemy forces in support of the Joint Chiefs of Staff's concept of precision engagement. Battle managers must make decisions in a rapid manner to counter both enemy actions and force movements. Battle managers must correctly cope with the fog-of-war conditions that are ever-present during the prosecution of the war. Currently, the COCOMs and Service components do not have a Battle Management system that addresses the BMD missions and functions for theater, regional, and global battle management.

The success or failure of the BMDS battle-management functions will determine the success or failure of BMD with respect to the achievement of the assigned objectives. The BMDS Battle Manager must identify, track, and direct weapons towards targets whose characteristics may not be known with certainty until the moment of battle. The BMDS Battle Manager must discriminate the threat objects from decoys and debris. The BMDS Battle Manager will have absolute real-time deadlines for the computation that will consist of periodic processes to include detecting and identifying potential threat missiles, assigning a weapon to engage the threat missile, and providing an assessment of the interceptor-threat missile engagement.

MDA will develop a globally distributed, real-time software-intensive Battle Management component to the C2BMC that exhibits highly predictable system behavior in which the C2BMC element receives sensor information from land, sea, air, and space, and commits land-, sea-, air-, and space-based weapons to direct fire at identified targets. To achieve the highly predictive system behavior, the BMDS Battle Manager developers will employ linear temporal logic and model checking techniques to a globally distributed, real-time battle-management software development to aid in the realization of desired system behavior to include the weapons-commit logic. The Battle Management computing will be accomplished through a network of computers that are connected to sensors and weapons as well as BMD element Battle Management computers.

NASA successfully piloted this innovative, non-traditional approach to software system design in their satellite software programs and in the current Mars Lander program. ASD(NII) endorsed this approach as a pathfinder for global real-time battle management integration and implementation.

The BMDS will include a large variety of individual sensors, weapons, and Battle Management components. The suite of weapons and sensors will increase in number as the program progresses in future blocks. The characteristics of these future weapons and sensors are not well defined and will likely remain fluid for many years. Additionally, all weapons and sensors will be subject to change independently of each other. As such, the Battle Management software must integrate numerous dynamic software systems to the extent that has never before been achieved.

The BMDS Battle Manager will include the following key characteristics: (1) a globally-distributed network, (2) an operational battlespace that includes land, sea, air, and space, (3) capability to address multiple targets that can threaten a specific theater of operations or region of the world, (4) management of concurrent battlespace activities, (5) some level of automated decision making regarding the release or hold of lethal weapons, and (6) stringent requirements for high levels of trustworthiness of the systems that provide BMD capabilities due to the quality of the threats.

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006   MDA Exhibit R-2A (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products

Specifically, the BMDS Battle Manager will feature the following functionalities:

- Rapidly verify the potential threat detection by early warning sensors. This capability requires the correlation of non-homogeneous track data from BMDS and non-BMDS sensors.
- Maintain track files of threat objects through all phases of missile flight. This capability requires a network of BMDS and non-BMDS sensors that provide overlapping sensor coverage for complete BMD battlespace tracking coverage.
- Concurrently process track information on thousands of objects to include detected threat ballistic missiles and debris objects from previous engagements, and adversary counter-measures.
- Interface with space-based, airborne, and surface IR sensors to receive detection information of a launched threat ballistic missile.
- Correlate the track data so that each threat ballistic missile in flight results in a single, accurate reported track in the battle management system.
- Cue sensors employed for all engagement sequences from battle management track files.
- Produce sensor-tasking requests for the purpose of adjusting radar field-of-regard towards detected track.
- Engage identified ballistic missile threats to enable BMD engagement sequences.
- Request BMDS weapons to hold fire on selected ballistic missile threats.
- Receive and provide rapid hit/kill assessments of threat objects. This capability also requires a network that includes BMDS and non-BMDS sensors that provide overlapping sensor coverage for complete BMD battlespace coverage.
- Behavior of the battle management function must be highly predictable with respect to state transitions, event triggers, element and component taskings, and outcomes.
- Fuse data from multiple, autonomous sensors with the intent of forming a more accurate estimation of the environment than is available from any single sensor. The data fusion capability is time critical, covers a large geographical area, and requires accurate, reliable information at completion.

These BMDS C2BMC Element Block 2006 Battle Management capabilities will be developed and implemented in four six-month Spirals - Spirals 6.1, 6.2, 6.3, and 6.4. While not all functions can be included in all spirals, all functions will be included in the C2BMC Element by the delivery and integration into the BMDS of Spiral 6.4.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
C2BMC ELEMENT		22,562	58,152
RDT&E Articles (Quantity)			1

FY 2005 RDT&E Articles: Spiral 6.1

FY 2004 Planned Accomplishments:
FY 2004 will see BMDS Block 2006 C2BMC system design and Spiral 6.1 specifications development. A select group of MDNTB(I) design engineers, aided by FFRDC personnel, will perform long-lead engineering efforts necessary to deliver the Block 2006 functionalities detailed above using the spiral development process.

FFRDC personnel provide specialized expertise in: Temporal Logic systems (which forms the foundation of the BMDS Battle Manager); Consequence Management; Technical Performance Measures (TPMs) and the MDA Statement of Goals (SOG); BMDS Elements' interface specifications to the C2BMC Element and; critical BMDS Communications network design.

Block 2006 efforts include:
- High priority fixes to C2 capabilities implemented in Block 2004 spirals and selected for improvements in Block 2006 based on War Fighter feedback. These enhancements to existing fielded capabilities include:
  -- Acquire and field tactical communications packages (including initial transition to wideband and protected satellite connectivity using SHF and EHF for battle management and command and control functions, additional JRE Gateways, and tactically configured network components) to globally support rapid BMDS deployments.

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006   MDA Exhibit R-2A (PE 0603889C)

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

-- Extend communications connectivity to new BMDS elements as they are brought into the BMDS system (specifically FBX-T and SBX sensors) and initial planning for the C2BMC Interface Network Processor (CINP).

-- Acquire, install, and test communications equipment to support additional C2BMC fielding activities including logistic spares and leased communications connectivity between fixed BMDS locations.

-- Continue effort to integrate communications infrastructure in support of sensor netting activities to improve battle space awareness and ability to track and engage targets.

-- Continue acquisition of survivable satellite communications assets for assured connectivity between BMDS elements.

-- Expanded Concurrent Test and Operations (CTO). Add redundant hardware strings at one or more sites, improving system availability.

-- Planner enhancements such as new or expanded Element capabilities including corresponding performance models, and performance response time improvements.

-- Expanded offense/defense integration. Expand beyond data sharing in Block 2004 to incorporate Battle Damage Assessment (BDA) from Attack Operations in updates to the Defense Design.

-- Automated system states and modes determination and reporting. Automatically parse BMDS Element status messages (USMTF, J-Series, and K-Series) with standardized status reporting across the BMDS. Automatically generate and transmit BMDS status messages.

-- Automatically display BMDS Element and communications network status changes and update the BMDS OPSCAP/SYSCAP status, enabling automated CTO transitions.

-- Automatic data synchronization including handling of Suites entering and exiting the BMDS network.

- Planned new C2 Capabilities include:

-- Expanded National Capital Region (NCR)

-- Enable reconfiguration to adjust to a variety of Host command structures.

-- Graceful system degradation. Maintain prioritized data delivery during network Quality of Service (QoS) degradation and support automatic data re-synchronization between C2BMC Suites.

-- Failover automation to enhance the availability and survivability of the composite C2BMC element. Respond to BMDS Element health and status.

-- Message-based Weapons Control Orders (WCOs). Automate generation of WCOs for specific BMDS weapons systems based on Operator commands.

-- Initial Consequence Management displays. Display weapon and debris tracks along with their projected impact points to support manual coordination regarding affected collateral assets.

-- Integration with air and ground picture. Augment the Block 2004 end-state integration of J-Series air and ground track messages by integrating with other C2 situational awareness pictures, such as GCCS.

- BMDS Battle Management capabilities include: BMDS Track Correlation; Automated BMDS weapons engagement control; BMDS network management; Regional sensor netting; BMDS element readiness reporting; Automated BMDS sensor tasking request; Aegis BMD launch-on-remote; Automated sensor registration; High priority fixes to capabilities implemented in previous spirals.

- Continue NATO International Projects which address interoperability concepts, requirements and interfaces for US BMDS and NATO missile defense operations. Initiate development of prototype NATO missile defense C2BMC requirements and implementation.

Communications efforts include:
- Acquire and field additional tactical communications packages (including USC-60A satellite terminals, JRE Gateways, and tactically configured network components) to globally support rapid BMDS deployments. This activity includes initial effort to add survivable communications connectivity between BMDS elements and to increase redundant communications to increase operational availability of BMDS. Begin acquisition of survivable satellite communications assets for assured connectivity between BMDS elements.
- Begin effort to integrate communications infrastructure in support of sensor netting activities to improve battle space awareness and ability to track and engage targets.

SETA personnel will support the delivery of the Block 2006 C2BMC Element by providing essential technical and programmatic support, including: BMDS Communications support with special emphasis on development Block 2006 BMDS Communications Network, JRE logistics support, communications interoperability across BMDS Elements, and BMDS IA/CND efforts; Block 2006 C2BMC System Engineering support activities, such as Interface Control Working Group/Configuration Control Board support, XML Registry, Spectrum Management, NATO C2BMC Interoperability; Programmatic Support such as developing Block 2006 POM estimates, Block 2006 IMP & IMS, and Block 2006 C2BMC Cost Analysis Requirement Document; C2BMC Prototype support including C2BMC-X BAA preparations and management; and C2BMC Element Test Support such as planning for Block 2006 BMD System Level Testing events.

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006   MDA Exhibit R-2A (PE 0603889C)

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		Date
MDA Exhibit R-2A RDT&E Project Justification		**February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603889C Ballistic Missile Defense Products**	

FY 2005 Planned Program:

The culmination of the engineering effort and specifications development for each software spiral is the Spiral Content Agreement (SCA) review. The SCA signals the completion of the specifications development phase performed during FY 2004 and the start of the software coding phase for that spiral. FY 2005 will see: software coding and development, software integration and testing, and delivery of Spirals 6.1 for BMD system level testing; and software coding and development for Spiral 6.2. Current planning has Spirals 6.1 and 6.2 notionally containing the following functionalities:

Spiral 6.1:
 - Verification of potential threat detections by early warning sensors.
 - Maintaining track files of threat objects through all phases of missile flight.
 - Concurrent processing of track information of thousands of objects, including detected threat ballistic missiles and debris objects from previous engagements, and adversary counter-measures.
 - Interfacing with space-based, airborne, and surface IR sensors to receive detection information of a launched threat ballistic missile.
 - Correlation of multiple source track data so that each threat ballistic missile in flight results in a single, accurate reported track in the battle management system.
 - Tasking of BMDS weapons to engage identified ballistic missile threats to enable BMD engagement sequences.
 - Requesting BMDS weapons to hold fire on selected ballistic missile threats.

Spiral 6.2:
 - Cueing sensors employed for all engagement sequences from battle management track files.
 - Receiving and providing rapid hit/kill assessments of threat objects. This capability also requires a network that includes BMDS and non-BMDS sensors that provide overlapping sensor coverage for complete BMD battlespace coverage.

SBIRS-DSP Interface to BMDS:

MDA, through AFSPC and SMC, is providing an interface to the BMDS to supply ONIR information to GMD and C2BMC. The project is being delivered in two phases. The IDC/Block 04 capability (Phase 1) was completed in FY04 and is described in Project 0701. Block 2006 (Phase 2) integrates the IDC/Block 2004 capability at the MCS and IMCS-B into the SBIRS mission processor allowing the normal crew force to operate the missile defense mission as they do the missile warning, technical intelligence and battle space characterization missions. This will provide for better situational awareness among the crew as they perform the missions and to take advantage of the inherently high reliability of the SBIRS ground station. Phase 2 also allows MDA to take advantage of additional sensors, not available to the stand alone configuration, for improved state vector performance.
 - FY04 Planned Accomplishments:
   -- Plan and design Integrated Capability
   -- Contract award
   -- Complete development efforts to integrate missile defense messages, state vector algorithm and VMF format into the operational SBIRS mission software
   -- Finalize interface control documents

 - Planned FY05 Program:
   -- Complete Integrated Capability
   -- Generate test and verification plans
   -- Complete operations, sustainment, and training planning efforts
   -- Perform Maintenance and TO verification

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006   MDA Exhibit R-2A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

- Planned FY 2005 Communications Program:
  -- Acquire and field tactical communications packages (including USC-60A satellite terminals, JRE Gateways, and tactically configured network components) to globally support rapid BMDS deployments.
  -- Extend communications connectivity to new BMDS elements as they are brought into the BMDS system (specifically ABL and THAAD programs).
  -- Acquire, install, and test communications equipment to support additional C2BMC fielding activities including logistic spares and leased communications connectivity between fixed BMDS locations.
  -- Acquire, install, field, and test network and data management capabilities and integrate these functions with Integrated Network Management System (INMS) system used by DoD per Joint Network Concept of Operations.
  -- Begin acquisition of survivable satellite communications assets for assured connectivity between BMDS elements.

SETA personnel will continue to provide critical technical and programmatic support for the Block 2006 C2BMC Element. Tasks are similar to those listed in FY 2004.

	FY 2003	FY 2004	FY 2005
Federally Funded Research and Development Centers (FFRDC)		2,350	
RDT&E Articles (Quantity)			

Starting FY 2005, this support is captured in the C2BMC Element program description.

Federally Funded Research Development Centers (FFRDC) personnel provide highly technical support across nearly every discipline necessary to develop, integrate and test, and activate the BMDS C2BMC Element. Specifically, FFRDC personnel assist in the specialized engineering of Temporal Logic forming the foundation of the BMDS Battle Manager, provide expertise in Consequence Management, assist with Technical Performance Measures (TPMs) and the MDA Statement of Goals (SOG), assist the MDNTB(I) with other BMDS Elements' interface specifications to the C2BMC Element, and provide critical BMDS Communications expertise.

	FY 2003	FY 2004	FY 2005
Scientific, Engineering and Technical Assistance (SETA)		1,765	
RDT&E Articles (Quantity)			

Starting FY 2005, this support is captured in the C2BMC Element program description.

SETA personnel provide essential technical and programmatic support for the development of the C2BMC Element:
- BMDS Communications support with special emphasis on development Block 2006 BMDS Communications Network, JRE logistics support, communications interoperability across BMDS Elements, and BMDS IA/CND efforts.
- Block 2006 C2BMC System Engineering support activities, such as ICWG/CCB support, XML Registry, Spectrum Management, NATO C2BMC Interoperability.
- Programmatic Support such as developing Block 2006 POM estimates, Block 2006 IMP & IMS, and Block 2006 C2BMC CARD.
- C2BMC Prototype support including C2BMC-X BAA preparations and management.
- C2BMC Element Test Support such as planning for Block 2006 BMD System Level Testing events.

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006   MDA Exhibit R-2A (PE 0603889C)

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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 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 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	Continuing	Continuing
PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD	887,616	0	0	0	0	0	0	Continuing	Continuing

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006   MDA Exhibit R-2A (PE 0603889C)

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	Date
MDA Exhibit R-2A RDT&E Project Justification	**February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603889C Ballistic Missile Defense Products**

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. This process will (1) allow early implementation of a capability while supporting an evolving requirement/threat definition process, (2) minimize the risks of obsolescence posed by the rapid pace of technology development, (3) provide opportunities to update to a changing set of standards, and (4) allow informed trades between cost, schedule, and performance while exploring operational possibilities.

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006   MDA Exhibit R-2A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**				

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
C2BMC ELEMENT										
MDNTB(I)	SS/CPAF	LLMC/ Arl, VA		22,562	1Q	58,152	1Q		80,714	
Federally Funded Research and Development Centers (FFRDC)										
C2BMC Element	SS/CPFF	MITRE, IDA, Aerospace, ORL/ MDA HQ, Arlington VA		2,350	1Q				2,350	
Scientific, Engineering and Technical Assistance (SETA)										
C2BMC Element	SS/CPFF	Sparta, CSC/ MDA HQ, Arlington VA		1,765	1Q				1,765	
Subtotal Product Development			0	26,677		58,152		0	84829	

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

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006   MDA Exhibit R-3 (PE 0603889C)

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				Date						
MDA Exhibit R-3 RDT&E Project Cost Analysis						**February 2004**				

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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	26,677		58,152			84,829	
Remarks										

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006

MDA Exhibit R-3 (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products

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 C2BMC Element																												
Block 2006 Block Design Review 1							△																					
Block 2006 Block Design Review 2									△																			
Block 2006 Block Design Review 3											△																	
Block 2006 Block Design Review 4													△															
BMDS C2BMC Modeling & Simulation							△——————————————△																					
Spiral 6.1 Eng. & Specs Development							△——△																					
Spiral 6.1 Content Agreement									☆																			
Spiral 6.1 Development									△——△																			
Spiral 6.1 Integration & Testing											△————△																
Spiral 6.1 BMD System Level Testing													▽															
Spiral 6.2 Eng. & Specs Development									△——△																			
Spiral 6.2 Content Agreement												☆																
Spiral 6.2 Development											△——△																	
Spiral 6.2 Integration & Testing													△——————△														
Spiral 6.2 BMD System Level Testing															△													

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006

MDA Exhibit R-4 (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products

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 C2BMC Element																												
Spiral 6.3 Eng. & Specs Development											△———△																	
Spiral 6.3 Content Agreement													☆															
Spiral 6.3 Development													△—△															
Spiral 6.3 Integration & Testing														△———△														
Spiral 6.3 BMD System Level Testing																	▽											
Spiral 6.4 Eng. & Specs Development													△—△															
Spiral 6.4 Content Agreement															☆													
Spiral 6.4 Development														△—△														
Spiral 6.4 Integration & Testing																	△———△										
Spiral 6.4 BMD System Level Testing																		▽										

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006

MDA Exhibit R-4 (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products

Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Block 2006 C2BMC Element							
Block 2006 Block Design Review 1		3Q					
Block 2006 Block Design Review 2			1Q				
Block 2006 Block Design Review 3			3Q				
Block 2006 Block Design Review 4				1Q			
BMDS C2BMC Modeling & Simulation		3Q-4Q	1Q-4Q	1Q-4Q			
Spiral 6.1 Eng. & Specs Development		3Q-4Q	1Q				
Spiral 6.1 Content Agreement			2Q				
Spiral 6.1 Development			2Q-3Q				
Spiral 6.1 Integration & Testing			3Q-4Q	1Q-2Q			
Spiral 6.1 BMD System Level Testing				2Q			
Spiral 6.2 Eng. & Specs Development			1Q-3Q				
Spiral 6.2 Content Agreement			4Q				
Spiral 6.2 Development			3Q-4Q	1Q			
Spiral 6.2 Integration & Testing				1Q-4Q			
Spiral 6.2 BMD System Level Testing				4Q			
Spiral 6.3 Eng. & Specs Development			3Q-4Q	1Q			
Spiral 6.3 Content Agreement				2Q			
Spiral 6.3 Development				2Q-3Q			
Spiral 6.3 Integration & Testing				3Q-4Q	1Q		
Spiral 6.3 BMD System Level Testing					1Q		
Spiral 6.4 Eng. & Specs Development				2Q-3Q			
Spiral 6.4 Content Agreement				4Q			
Spiral 6.4 Development				4Q	1Q		
Spiral 6.4 Integration & Testing					2Q-4Q		
Spiral 6.4 BMD System Level Testing					4Q		

Project: 0801 Command and Control, Battle Management and Communications (C2BMC) Block 2006

MDA Exhibit R-4A (PE 0603889C)

0595

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 **0603889C Ballistic Missile Defense Products**

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0901 Command and Control, Battle Management and Communications (C2BMC) Block 2008	0	373	10,798	33,924	40,444	242,712	246,312
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: - Beginning in FY 2004, funding for this project transitioned from BMD Systems Program Element (PE) (0603880C-Project 1010) to the Ballistic Missile Defense Products PE (0603889C-Project 0701).
- Beginning in FY 2005, all funding except for government salaries transitioned from BMD System Core PE (0603890C-Project 0201) to the BMD Products PE (0603889C-Project 0701).
- Beginning FY 2005, FFRDC and SETA funding transition into the C2BMC Element program section description.

A. Mission Description and Budget Item Justification
The BMDS C2BMC Element Block 2008 capabilities is planned to be developed and implemented in four six-month Spirals - Spirals 8.1, 8.2, 8.3, and 8.4. The current vision for C2BMC evolution calls for a continuation and refinement of the BMDS Battle Management (BM) and sensor netting emphasis begun for Block 2006.

The goal remains to develop a globally distributed, real-time software-intensive BM system that exhibits highly predictable system-software behavior, in which the system receives sensor information from land, sea, air, and space, and commits land-, sea-, air-, and space-based weapons to fire at identified targets. Furthermore, we plan to employ temporal logic and model checking to a globally distributed, real-time battle-management system to aid in the realization of desired system behavior to include the weapons-commit logic. This approach will provide the following:
- Predictable battle management behavior for all possible inputs
- Software that meets all the hard real-time deadlines
- Automated test oracles that facilitate specification testing, software coding, element integration, and fielding

Current desired Block 2008 capabilities are as follows:

- C2: Simultaneous Current and Future Planning; Automated Dynamic BMDS Replanning in Seconds; and Automated Logistics, Communications and Intelligence feeds for planning.

- BM: Multi-spectral Data Fusion; Engage On Remote; Kill Assessment.

- Comms: Global Reach BMDS with Broadband SATCOM; End-to-End Quality-of-Service (QoS) requirements met; RT Network Management & Control; and Dynamic QoS Negotiations.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
C2BMC ELEMENT			10,798
RDT&E Articles (Quantity)			

Block 2008 efforts during this period will be limited as we concentrate on IDO, Block 2004 and long-lead efforts for Block 2006.

Planned FY 2005 Program:
Expand long-lead engineering design efforts for Block 2008. Includes early design work for Dynamic Replanning C2 capability, Engage On Remote BM capability, and a Global Reach BMDS with Broadband SATCOM communications capability.

Project: 0901 Command and Control, Battle Management and Communications (C2BMC) Block 2008   MDA Exhibit R-2A (PE 0603889C)

0596

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

	FY 2003	FY 2004	FY 2005
Federally Funded Research and Development Centers (FFRDC)		373	
RDT&E Articles (Quantity)			

Starting FY 2005, this support is captured in the C2BMC Element Program description.

Federally Funded Research Development Centers (FFRDC) personnel provide highly technical support across nearly every discipline necessary to develop, integrate and test, and activate the BMDS C2BMC Element. Specifically, FFRDC personnel assist in the specialized engineering of Temporal Logic forming the foundation of the BMDS Battle Manager, provide expertise in Consequence Management, assist with Technical Performance Measures (TPMs) and the MDA Statement of Goals (SOG), assist the MDNTB(I) with other BMDS Elements' interface specifications to the C2BMC Element, and provide critical BMDS Communications expertise.

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

Project: 0901 Command and Control, Battle Management and Communications (C2BMC) Block 2008   MDA Exhibit R-2A (PE 0603889C)

0597

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 **0603889C Ballistic Missile Defense Products**					

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0901598C Management Headquarters - MDA	35,331	92,449	141,923	146,099	145,112	151,727	154,583	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 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	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)).

Project: 0901 Command and Control, Battle Management and Communications (C2BMC) Block 2008   MDA Exhibit R-2A (PE 0603889C)

0598

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 **0603889C Ballistic Missile Defense Products**

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
C2BMC ELEMENT										
C2BMC Element	SS/CPAF	LMMS/ Crystal City, VA				10,798	1Q		10,798	
Federally Funded Research and Development Centers (FFRDC)										
C2BMC Element	SS/CPFF	MITRE/ MDA HQ, Arlington VA		373	1Q				373	
Subtotal Product Development			0	373		10,798		0	11171	

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

Project: 0901 Command and Control, Battle Management and Communications (C2BMC) Block 2008

MDA Exhibit R-3 (PE 0603889C)

0599

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 **0603889C Ballistic Missile Defense Products**

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

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 Total Cost			0	373		10,798			11,171	

Remarks

Project: 0901 Command and Control, Battle Management and Communications (C2BMC) Block 2008

MDA Exhibit R-3 (PE 0603889C)

0600

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
0603889C Ballistic Missile Defense Products

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
Manufacturing Processes and Advanced Materials																												
Spiral 8.1 Software																	△											
Spiral 8.2 Software																			△									
Spiral 8.3 Software																					△							
Studies & Analyses																												
Block 2008 BMDS C2BMC								△——————————————△																				
Block 2004 C2BMC Operations & Support																												
Spiral 8.1 Development, Testing & Integration																△——△												
Spiral 8.2 Development, Testing & Integration																	△——△											
Spiral 8.3 Development, Testing & Integration																			△——△									

Project: 0901 Command and Control, Battle Management and Communications (C2BMC) Block 2008

MDA Exhibit R-4 (PE 0603889C)

0601

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 **0603889C Ballistic Missile Defense Products**		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Manufacturing Processes and Advanced Materials							
Spiral 8.1 Software						1Q	
Spiral 8.2 Software						3Q	
Spiral 8.3 Software							1Q
Studies & Analyses							
Block 2008 BMDS C2BMC		4Q	1Q-4Q	1Q-4Q	1Q-2Q		
Block 2004 C2BMC Operations & Support							
Spiral 8.1 Development, Testing & Integration					3Q-4Q	1Q	
Spiral 8.2 Development, Testing & Integration						1Q-3Q	
Spiral 8.3 Development, Testing & Integration						3Q-4Q	1Q

Project: 0901 Command and Control, Battle Management and Communications (C2BMC) Block 2008   MDA Exhibit R-4A (PE 0603889C)

0602

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0702 Hercules Block 2004	0	17,959	0	0	0	0	0
RDT&E Articles Qty	0	4	0	0	0	0	0

Note: This Project covers the Block 2004 product elements of Project Hercules. The Hercules Block 2006 and Block 2008 products are described in this same PE (0603889C) under projects 0802 and 0902 respectively. The Hercules core elements are described in PE 0603890C, BMD Core, Project 0202. In FY 2005, Project 0702, Hercules Block 2004 Products, is moved to Project 0802, Hercules Block 2006.

A. Mission Description and Budget Item Justification

Project Hercules is a national effort to develop robust detection, tracking, and discrimination algorithms to counter off nominal and evolving missile threats. Hercules is also developing a physics-based Decision Architecture, that applies advanced decision theory to future BMDS command, control, and battle management (C2/BM) concepts. In addition to a general program to develop algorithms useful against targets in all phases of flight, Hercules has specific projects to develop algorithms for forward based sensors, the Decision Architecture, and mitigating countermeasures. Hercules develops algorithms to enhance BMDS element capabilities in Block 06, 08 and beyond and will provide these algorithms to the BMDS elements for insertion into their respective programs.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
Algorithm Productization and Test		8,337	
RDT&E Articles (Quantity)			

Hercules successfully tested the initial prototype elements of the Decision Architecture, an approach to applying advanced decision theory concepts to C2BMC. Elements of the Decision Architecture underwent performance characterization testing and completed real time testing on several system level tests in the BMD Test Bed. The Decision Architecture prototype will continue to be upgraded, adding components that accommodate new and updated elements of the BMDS. Successful real time and digital tests for discrimination and fusion algorithms were also completed and will be ongoing as part of the BMDS spiral upgrades.

	FY 2003	FY 2004	FY 2005
Project Hercules		9,622	
RDT&E Articles (Quantity)		4	

Delivered three algorithms to the forward based sensor team for integration into the TPS-X BMD Test Bed radar and their BMD Radar. Completed testing on a discrimination algorithm being integrated into the SBX radar.

Project: 0702 Hercules Block 2004   MDA Exhibit R-2A (PE 0603889C)

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 **0603889C Ballistic Missile Defense Products**

C. Other Program Funding Summary

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	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

Project: 0702 Hercules Block 2004

MDA Exhibit R-2A (PE 0603889C)

0604

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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.

Project: 0702 Hercules Block 2004

MDA Exhibit R-2A (PE 0603889C)

0605

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 0603889C Ballistic Missile Defense Products

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		1,588	1Q			CONT.	1,588	CONT.
SPARTA	CPFF	Arlington, VA		1,150	1Q			CONT.	1,150	CONT.
SMDC Hercules	Various	Various		908	1Q			CONT.	908	CONT.
MDA Hercules	Various	Various		1,278	1Q			CONT.	1,278	CONT.
Algorithm Productization and Test										
Boeing	CPAF	Arlington, VA		2,200	1Q			CONT.	2,200	CONT.
SPARTA	CPFF	Arlington, VA		1,542	1Q			CONT.	1,542	CONT.
SMDC Hercules	Various	Various		306	1Q			CONT.	306	CONT.
Subtotal Support Costs			0	8,972		0		0	8972	

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
Algorithm Productization and Test										
MIT/LL	CPFF	Hanscomb AFB		4,039	1Q			CONT.	4,039	CONT.
JNIC	Various	Colorado Springs, CO		250	1Q			CONT.	250	CONT.
Project Hercules										
MIT/LL	CPFF	Hanscomb AFB		1,230	1Q			CONT.	1,230	CONT.

Project: 0702 Hercules Block 2004

MDA Exhibit R-3 (PE 0603889C)

0606

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 **0603889C Ballistic Missile Defense Products**				
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
Northrop Grumman XonTech	CPFF	Van Nuys, CA		1,139	1Q			CONT.	1,139	CONT.
SMDC	Various	Various		1,345	1Q			CONT.	1,345	CONT.
MDA Hercules	Various	Various		984	1Q			CONT.	984	CONT.
Subtotal Test and Evaluation			0	8,987		0		0	8987	
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	17,959		0			17,959	
Remarks										

Project: 0702 Hercules Block 2004

MDA Exhibit R-3 (PE 0603889C)

0607

	Date
MDA Exhibit R-4 Schedule Profile	**February 2004**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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
Hercules																												
Hercules Program Review					▲																							
Algorithms to test					▲	△	△	△																				
Post Flight Test Data Analysis					△——————△																							

Project: 0702 Hercules Block 2004

MDA Exhibit R-4 (PE 0603889C)

0608

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 0603889C Ballistic Missile Defense Products

Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Hercules							
Hercules Program Review		1Q					
Algorithms to test		1Q,2Q,3Q,4Q					
Post Flight Test Data Analysis		1Q-4Q					

Project: 0702 Hercules Block 2004

MDA Exhibit R-4A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0802 Hercules Block 2006	0	19,252	38,188	37,521	37,496	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: This Project covers the Block 2006 project elements of Project Hercules. The Hercules Block 2004 and Block 2008 projects are described in this same PE (0603889C) under projects 0702 and 0902 respectively. The Hercules core elements are described in PE 0603890C, BMD Core, Project 0202. In FY 2005, all of Project 0702, Hercules Block 2004 Products, is moved here to Project 0802, Hercules Block 2006. Also in FY 2005, a portion of PE 060890C, BMDS Core, Project 0202, Hercules Core, is moved here to Project 0802, Hercules Block 06.

A. Mission Description and Budget Item Justification

Project Hercules is a national effort to develop robust detection, tracking, and discrimination algorithms to counter off nominal and evolving missile threats. Hercules is also developing a physics-based Decision Architecture that applies advanced decision theory to future BMDS command, control, and battle management (C2/BM) concepts. In addition to a general program to develop algorithms useful against targets in all phases of flight, Hercules has specific projects to develop algorithms for forward based sensors, the Decision Architecture, and mitigating countermeasures. Hercules develops algorithms to enhance BMDS element capabilities in Block 06, 08 and beyond and will provide these algorithms to the BMDS elements for insertion into their respective programs.

Algorithm development and testing for Block 06 is focused on spiral capability enhancements for midcourse and forward based sensors and battle management systems. These algorithms improve the functionality of the Block 06 radar and electro-optical sensors, enabling them to better perform their Engagement Sequence Group roles. Fusion and decision theory software is also under development and being provided to the C2BMC element developers for their evaluation and inclusion in Block 06 or Block 08.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
Project Hercules		19,252	38,188
RDT&E Articles (Quantity)			

In FY 2004 and FY 2005, Project Hercules will continue the development of detection, tracking, and discrimination algorithms for use in all phases of flight by multiple radar and electro-optical sensors and the Decision Architecture.

Specific Block 06 goals for these developments include:

1) Providing algorithm concepts and test results to support the evaluation and subsequent integration of enhancements to radar and elector-optical systems included in Block 06.

2) Delivery of a prototype Decision Architecture, a real time battle management tool that provides information supporting weapons and sensor resource allocation based upon information being received from multiple sensors throughout the layered BMDS. This prototype will be evaluated by the C2BMC acquisition team for inclusion in the C2BMC element.

Project: 0802 Hercules Block 2006   MDA Exhibit R-2A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**				

C. Other Program Funding Summary

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	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

Project: 0802 Hercules Block 2006   MDA Exhibit R-2A (PE 0603889C)

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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.

Project: 0802 Hercules Block 2006

MDA Exhibit R-2A (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products

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										
Boeing	CPAF	Arlington, VA		0		1,944	1Q	CONT.	1,944	CONT.
Lockheed Martin	CPFF	Sunnyvale, CA		1,375	1Q	1,111	1Q	CONT.	2,486	CONT.
Raytheon	CPFF	Boston, MA		1,125	1Q	1,111	1Q	CONT.	2,236	CONT.
SPARTA	CPFF	Arlington, VA		3,905	1Q	7,419	1Q	CONT.	11,324	SPARTA
MDA Hercules	Various	Various		188	1Q	1,646	1Q	CONT.	1,834	CONT.
ONR	Various	Various		250	1Q	278	1Q	CONT.	528	CONT.
MIT/LL	CPFF	Hanscomb AFB		3,391	1Q	5,167	1Q	CONT.	8,558	CONT.
Northrup Grumman XonTech	CPFF	Van Nuys, CA		1,553	1Q	1,047	1Q	CONT.	2,600	CONT.
SMDC Hercules	Various	Various		600	1Q	2,313	1Q	CONT.	2,913	CONT.
PRA	CPFF	Arlington, VA		1,001	1Q			CONT.	1,001	CONT.
Subtotal Support Costs			0	13,388		22,036		0	35424	

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										
SMDC Hercules	Various	Various		519	1Q	778	1Q	CONT.	1,297	CONT.
AFRL-Eglin AFB	Various	Various		519	1Q	471	1Q	CONT.	990	CONT.
MIT/LL	CPFF	Hanscomb AFB		1,849	1Q	7,170	1Q	CONT.	9,019	CONT.
Northrop Grumman XonTech	CPFF	Van Nuys, CA		1,966	1Q	4,021	1Q	CONT.	5,987	CONT.

Project: 0802 Hercules Block 2006   MDA Exhibit R-3 (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**				
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 Hercules	Various	Various				687	1Q	CONT.	687	CONT.
JNIC	Various	Colorado Springs, CO				278	1Q	CONT.	278	CONT.
Subtotal Test and Evaluation			0	4,853		13,405		0	18258	
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 Hercules										
MDA Hercules	Various	Various		1,011	1Q	2,256	1Q	CONT.	3,267	CONT.
SMDC Hercules	Various	Various				491	1Q	CONT.	491	CONT.
Subtotal Management Services			0	1,011		2,747		0	3758	
Remarks										
Project Total Cost			0	19,252		38,188			57,440	
Remarks										

Project: 0802 Hercules Block 2006

MDA Exhibit R-3 (PE 0603889C)

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	Date
MDA Exhibit R-4 Schedule Profile	**February 2004**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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
Hercules																												
Hercules Program Review					▲				△				△				△											
Algorithms and DA Prototype ATT					▲	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△								
Post-Flight Test Data Analysis					△———————————————————————————△																							

Project: 0802 Hercules Block 2006

MDA Exhibit R-4 (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Hercules							
Hercules Program Review		1Q	1Q	1Q	1Q		
Algorithms and DA Prototype ATT		1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q		
Post-Flight Test Data Analysis		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		

Project: 0802 Hercules Block 2006

MDA Exhibit R-4A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0902 Hercules Block 2008	0	18,589	45,898	45,096	45,066	83,881	85,319
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: This Project covers the Block 2008 project elements of Project Hercules. The Hercules Block 2004 and Block 2006 projects are described in this same PE (0603889C) under projects 0702 and 0802 respectively. The Hercules core elements are described in PE 0603890C, BMD Core, Project 0202. In FY 2005, a portion of PE 060890C, BMDS Core, Project 0202, Hercules Core, is moved here to PE 060889C, BMD Products, Project 0902, Hercules Block 08.

A. Mission Description and Budget Item Justification

Project Hercules is a national effort to develop robust detection, tracking, and discrimination algorithms to counter off nominal and evolving missile threats. Hercules is also developing a physics-based Decision Architecture that applies advanced decision theory to future BMDS command, control, and battle management (C2/BM) concepts. In addition to a general program to develop algorithms useful against targets in all phases of flight, Hercules has specific projects to develop algorithms for forward based sensors, the Decision Architecture, and mitigating countermeasures. Hercules develops algorithms to enhance BMDS element capabilities in Block 06, 08 and beyond and will provide these algorithms to the BMDS elements for insertion into their respective programs.

Algorithm development and testing for Block 08 is focused on spiral capability enhancements for battle management systems and sensors functioning in all phases of flight. These algorithms improve the functionality of the Block 08 radar and electro-optical sensors, enabling them to better perform their Engagement Sequence Group roles. Fusion and decision theory software is also under development and being provided to the C2BMC element developers for their evaluation and inclusion in Block 06 or Block 08.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
Project Hercules		18,589	45,898
RDT&E Articles (Quantity)			

In FY 2004 and FY 2005, Project Hercules will continue the development of detection, tracking, and discrimination algorithms for use in all phases of flight by multiple radar and electro-optical sensors and the Decision Architecture.

Specific Block 08 goals for these developments include:

1) Providing algorithm concepts and test results to support the evaluation and subsequent integration of enhancements to radar and elector-optical systems included in Block 08

2) Introducing advanced algorithms or algorithm suites for clutter mitigation

3) Delivery of a an enhanced prototype Decision Architecture, a real time battle management tool that provides information supporting weapons and sensor resource allocation based upon information being received from multiple sensors throughout the layered BMDS. This prototype will be evaluated by the C2BMC acquisition team for inclusion in the C2BMC element.

Project: 0902 Hercules Block 2008

MDA Exhibit R-2A (PE 0603889C)

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 **0603889C Ballistic Missile Defense Products**

C. Other Program Funding Summary

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	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

Project: 0902 Hercules Block 2008

MDA Exhibit R-2A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

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.

Project: 0902 Hercules Block 2008

MDA Exhibit R-2A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**				

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										
Lockheed Martin	CPFF	Sunnyvale, CA		1,250	1Q	2,212	1Q	CONT.	3,462	CONT.
Raytheon	CPFF	Boston, MA		2,163	1Q	2,993	1Q	CONT.	5,156	CONT.
SPARTA	CPFF	Arlington, VA		2,885	1Q	4,364	1Q	CONT.	7,249	SONT.
MDA Hercules	Various	Various		1,593	1Q	4,066	1Q	CONT.	5,659	CONT.
ONR	Various	Various		500	1Q	590	1Q	CONT.	1,090	CONT.
AFRL-Eglin AFB	Various	Various		700	1Q	1,800	1Q	CONT.	2,500	CONT.
PRA	CPFF	Arlington, VA				2,209	1Q	CONT.	2,209	CONT.
MIT/LL	CPFF	Hanscomb AFB		4,101	1Q	7,680	1Q	CONT.	11,781	CONT.
Northrup Grumman XonTech	CPFF	Van Nuys, CA		3,684	1Q	7,948	1Q	CONT.	11,632	NORTH.
SMDC	Various	Various		1,369	1Q	1,474	1Q	CONT.	2,843	CONT.
Subtotal Support Costs			0	18,245		35,336		0	53581	

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										
AFRL-Eglin AFB	Various	Various		344	1Q	1,398	1Q	CONT.	1,742	CONT.
CSC	CPFF	Fairfax, VA				1,019	1Q	CONT.	1,019	CONT.
MIT/LL	CPFF	Hanscomb AFB				2,153	1Q	CONT.	2,153	CONT.
MDA Hercules	Various	Various				851	1Q	CONT.	851	CONT.

Project: 0902 Hercules Block 2008

MDA Exhibit R-3 (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products					
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			0	344		5,421		0	5765	
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 Hercules										
CSC-SETA	FFP	Fairfax, VA				1,334	1Q	CONT.	1,334	CONT.
SPARTA-SETA	FFP	Arlington, VA				1,221	1Q	CONT.	1,221	CONT.
MDA Hercules	Various	Various				1,732	1Q	CONT.	1,732	CONT.
SMDC Hercules	Various	Various				854	1Q	CONT.	854	CONT.
Subtotal Management Services			0	0		5,141		0	5141	
Remarks										
Project Total Cost			0	18,589		45,898			64,487	
Remarks										

Project: 0902 Hercules Block 2008

MDA Exhibit R-3 (PE 0603889C)

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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
0603889C Ballistic Missile Defense Products

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
Hercules																												
Hercules Program Review					▲				△				△				△				△				△			
Algorithms and DA Prototype ATT					▲	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
Post-Flight Test Data Analysis					△																							△

Project: 0902 Hercules Block 2008

MDA Exhibit R-4 (PE 0603889C)

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	Date
MDA Exhibit R-4A Schedule Detail	**February 2004**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Hercules							
Hercules Program Review		1Q	1Q	1Q	1Q	1Q	1Q
Algorithms and DA Prototype ATT		1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q	1Q,2Q,3Q,4Q
Post-Flight Test Data Analysis		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

Project: 0902 Hercules Block 2008

MDA Exhibit R-4A (PE 0603889C)

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UNCLASSIFIED

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 0603889C Ballistic Missile Defense Products

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0703 Joint Warfighter Support Block 2004	0	23,865	12,887	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Beginning in FY 2004, funding for this effort transitioned from BMD Systems Program Element (PE) 0603880C (Project 1055) to the new Ballistic Missile Defense Products PE 0603889C (Project 0703). Starting in FY 2005, funding for this effort has been allocated across Ballistic Missile Defense Products PE 0603889C (Project 0703 and 0803).

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). 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 (TRW) works with the Combatant Commanders, the 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 program supports planning for emergency deployments, and integration of CoComs in required wargames, tabletops, experiments, System Integrated Tests and Hardware in the Loop Tests required for enhanced use of the Joint National Integration Center (JNIC) in support of operational concept development.

The combatant commanders must establish a sequence of essential activities that must be completed to deliver missile defensive capabilities. To employ the BMDS, receiving combatant commanders and cognizant component commanders must develop the procedures and rules under which the element will be operated. The combatant and subordinate component commanders need to establish how the capability will be employed in autonomous operations as well as a part of the integrated BMDS. The hardware, software must be made available for initial operational checkout, familiarization, and training. The equipment will be operated in training and test modes only, pending operator certification for tactical employment of the capability. An integrated BMDS Level Training qualification and certification must be completed to provide the baseline level of training for the unit to effectively participate in BMDS integrated training. The combatant commander tactical teams and unit watch teams are trained in integrated tactical operations, exercising advanced skills and tasks needed to effectively employ the BMDS. The combatant commander and MDA shall establish in an MOA, the procedures and rules for conducting Test Bed RDT&E activities with BMDS assets that form the fielded BMDS capability. The MOA would address readiness needs, national security posture, test duration and recovery time, required BMDS Mode/State, restoration capability training and support, and steps to return to full operation. At the completion of these accomplishments, the Combatant Commander declares the Element or component operational and capable of being placed on alert.

TRW will work with the Services and the Combatant Commanders to develop a BMD Support Structure to provide support for fielded capabilities. For initial defense operations (IDO), TRW is coordinating the building of the manning documents, the above element training plans, Integrated Logistics Plan, the progression to alert plan, and the Missile Defense Agency Operation Center (MOC). The program ensures the combatant commands are provided with a BMDS that is supported logistically, by establishing overarching logistics policies and practices. The Joint Warfighter Support Program will facilitate transition and transfer of BMD capabilities to the Services, as directed. The program will develop an above-element training program that will educate and train staffs and senior decision makers about BMDS capabilities.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
Regional Combatant Commanders Exercises		11,665	9,446
RDT&E Articles (Quantity)			

In Block 2004 Regional Combatant Commanders Exercises will explore emerging BMDS Concepts using tabletops, seminars, SWARFs, wargames and exercises; incorporate BMDS capabilities into combatant commanders, wargames, demonstrations, experiments and exercises; develop BMDS curriculum to build knowledge base with Senior Warfighters; incorporate BMDS capabilities and MOEs in wargames. Major system exercises and tests include BMDS IMD Wargame 04 and 05 to develop CONOPS and Tactics, Techniques and Procedures.

Project: 0703 Joint Warfighter Support Block 2004

MDA Exhibit R-2A (PE 0603889C)

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	Date
MDA Exhibit R-2A RDT&E Project Justification	**February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603889C Ballistic Missile Defense Products**

FY 2003 ACCOMPLISHMENTS (funded in PE 0603880C):

- Used experiments, technology demonstrations, and theater-level exercises to help ensure the joint interoperability and successful fielding of Ballistic Missile Defense System (BMDS) to the warfighting customers.
- Provided simulation planning, preparation and management for exercises associated with the Joint Warfighter Support Program. Exercises for which planning, execution, or both was required during FY03 included: Juniper Cobra-03 and Joint Task Force (JTF) Cobra (Operation Iraqi Freedom) (USEUCOM),Joint Project Optic Windmill (JPOW)VIII (USEUCOM), Ulchi Focus Lens (UFL)03 and Terminal Fury 04 (USPACOM and USFK), Reception Staging and Onward Integration (RSOI)/Foal Eagle(RSOI/FE), Roving Sands 03 (USJFCOM), and Integrated Missile Defense (IMD) 2 and IMD 3-01.
- Supported the development of joint interoperability BMD doctrine, CONOPS, and Tactics, Techniques and Procedures (TTPs);and provided Joint Coalition Allied BMD interoperability data.

FY 2004 PLANNED PROGRAM:

- Develop Tactics, Techniques & Procedures (TTP) and Rules of Engagement (ROE) to integrate BMDS elements into Operational Community for Block 04 BMDS.
- Refine BMDS and C2BMC concepts/options through studies, seminars, Senior Warfighters Forums (SWARFS), workshops, tabletops, wargames and exercises. These activities provide the basis for the assessment, development and improvement of BMD capabilities.
- Develop and coordinate deployment of BMDS emergency capabilities with the Joint Staff, the Services and the Combatant Commanders.
- Provide CAMDEN Maintenance and exercise support as required.
- Provide IMD Wargame support as required.
- Participate in exercise meetings as directed/required.
- Support development of exercise objectives and develop technical/programmatic briefings as required.
- Support exercise execution as required.
- Provide personnel to operate the MARS terminal and D2T unit simulating one SMD equipped AEGIS ship.
- Support JWS exercises by providing the following subject matter experts in Joint Range Extension (JRE), Joint Tactical Information Distribution System (JTIDS) Radios, Network Design, Satellite TADIL J, AN/PSC-5 operations, Joint Information Control Officer (JICO) functions; Commanders Tactical Terminal/Tactical Data Display System (CTT/TDDS); Three Data Collector/Analyst with expertise in MIL STD 6016, data collection, data analysis, Patriot BMC3I software, JADE, and Link Monitoring System-16 (LMS-16) operations.
- Provide the resources to support exercise execution as required.
- Support MDA with an ABL OITL representation of Block 04 ABL capabilities, which also supports USAF concept of operations investigations and interoperability issues.
- Provide exercise specific model software modification and confirmation testing.
- Integration and Warfighter refinement of element CONOPs.
- Familiarization of BMDS Capabilities and limitations.
- Integration of IDO and Block-04 elements into existing CoCom Plans, tactics, techniques and procedures.
- Develop and coordinate the Block 04 activation plan.

FY 2005 PLANNED PROGRAM:

- Continue to refine TTP and ROE to integrate BMDS Elements into Operational Community for Block 04 BMDS.
- Continue refining BMDS and C2BMC concepts/options through studies, seminars, SWARFS, workshops, tabletops, wargames and exercises using the JNIC as the hub. These activities provide the basis for the assessment, development and improvement of BMD capabilities.
- Continue to develop and coordinate deployment of BMDS emergency capabilities with the Joint Staff, the Services and the Combatant Commander.
- Continue to provide CAMDEM Maintenance and exercise support as required.

Project: 0703 Joint Warfighter Support Block 2004

MDA Exhibit R-2A (PE 0603889C)

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

- Continue to provide IMD Wargame support as required.
- Continue to participate in exercise meetings as directed/required.
- Continue to support development of exercise objectives and develop technical/programmatic briefings as required.
- Continue to support exercise execution as required.
- Continue to provide personnel to operate the MARS terminal and D2T unit simulating one SMD equipped AEGIS ship.
- Continue to Support JWS exercises by providing the following subject matter experts in Joint Range Extension (JRE), Joint Tactical Information Distribution System (JTIDS) Radios, Network Design, Satellite TADIL J, AN/PSC-5 operations, Joint Information Central Officer (JICO) functions; Commanders Tactical Terminal/Tactical Data Display System (CTT/TDDS); Three Data Collector/Analyst with expertise in MIL STD 6016, data collection, data analysis, Patriot BMC3I software, JADE, and Link Monitoring System-16 (LMS-16) operations.
- Continue to provide the resources to support exercise execution as required.
- Continue to support MDA with an ABL OITL representation of Block 04 ABL capabilities, which also supports USAF concept of operations investigations and interoperability issues.
- Continue to provide exercise specific model software modification and confirmation testing.
- Continue to integrate and refine Warfighter elements into the CONOPs.
- Continue to refine BMDS Capabilities and limitations.
- Continue to integrate IDO and Block-04 elements into existing CoCom Plans, tactics, techniques and procedures.
- Continue to develop and coordinate the Block 04 activation plan.

	FY 2003	FY 2004	FY 2005
Combatant Commanders Support		400	199
RDT&E Articles (Quantity)			

In Block 2004 Combatant Commanders Support will bring joint combined coalition lessons learned to the developer; participate in Joint Combined Coalition Doctrine, Operational Concepts, CONOPS, CONPLANs, OPLANS, TTP and ROE Development; coordinate block deployment plan; engage in C2 development; develop Operational Concepts and Operational Architectures through the Operational Concept Team (OCT); facilitate intra/inter Theater CONOPS Development; facilitate program transition to the services; maintain interactions with transitioned programs; conduct planning for fielding BMDS capabilities; execute warfighter interface process.

FY 2004 PLANNED PROGRAM:

- Develop preliminary Integrated Missile Defense (IMD) Concept of Operations (CONOPS) for the Block 04 BMDS.
- Interface and coordinate BMDS issues with Services, Joint Staff and Allied Forces to develop understanding of each other's doctrine and common CONOPS, and to determine equipment compatibility and interoperability.
- Recipients of funding were: USSTRATCOM, PACOM, EUCOM, CENTCOM, USNORTHCOM and USFK.

FY 2005 PLANNED PROGRAM:

- Continue developing preliminary Integrated Missile Defense (IMD) Concept of Operations (CONOPS) for the Block 04 BMDS.
- Continue to interface and coordinate BMDS issues with Services, Joint Staff and Allied Forces to develop understanding of each other's doctrine and common CONOPS, and to determine equipment compatibility and interoperability.
- Recipients of funding will be: USSTRATCOM, PACOM, EUCOM, CENTCOM, USNORTHCOM and USFK.

Project: 0703 Joint Warfighter Support Block 2004

MDA Exhibit R-2A (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products

	FY 2003	FY 2004	FY 2005
SETA Support		7,300	3,142
RDT&E Articles (Quantity)			

Scientific, Engineering, Technical and Assistance support provided to MDA HQ in support of Block 2004 efforts.

	FY 2003	FY 2004	FY 2005
BMDS Support		4,500	100
RDT&E Articles (Quantity)			

In Block 2004 BMDS Support coordinates MDA support with the Services, other Agencies of the BMDS and its elements and components for the Combatant Commanders. The coordination includes activation of the Test Bed & Operational Environment of the BMDS; operational support and logistics support of the BMDS.

FY 2003 ACCOMPLISHMENTS (funded in PE 0603880C):

- Initiated Integrated Logistics Team (ILST), involving USSTRATCOM, USNORTHCOM, SE, DB, BC, GMD, Aegis, Patriot, THAAD, SBS, and logistics organizations from the Army, Navy, and Air Force, to solve system-wide logistics issues.
- Conducted analysis of requirements for BMDS above-element training. Operations Center, to provide support of the BMDS to the Combatant Commands (USSTRATCOM, USNORTHCOM, and others), beginning in FY04.
- Examined processes, timing, stakeholders, and issues associated with future transitions and transfers.
- Developed initial set of functions and interfaces for the MDA Operations Center, to provide support of the BMDS to the Combat Commands (USSTRATCOM, USNORTHCOM, and others, beginning in FY04.

FY 2004 PLANNED PROGRAM:

- Develop and operate the Missile Defense Agency Operation Center (MOC), as an enabler for support to the Combatant Commands.
- Plan for transition and transfer of BMDS capabilities, as directed.
- Facilitate Transition and transfer of BMDS capabilities, as directed.
- Develop Sustainment concepts of operation (CONOPS)/doctrine, policy and plans for supporting BMDS Elements and components (included: personnel, materiel, logistical support, facility support, funding support [O&S], security/force protection).
- Provide overarching Logistics policies and guidance to ensure the BMDS, to include sea based programs, GMD, Patriot, and C2BMC, are supportable in Block 04 and subsequent Blocks.
- Provide overarching Logistics policies and guidance to ensure the BMDS, to include future programs such as THAAD and ABL are supportable in future Blocks.
- Develop and operate an MDA Operations Center, with the objective of facilitating timely, efficient, and effective support for the activated BMDS, selected elements and components, to the Combatant Commands. Primary interfaces for Block 04 will include: USSTRATCOM, USNORTHCOM, USPACOM, JNIC, GMD GOC, GMD LOGCC, Aegis Logistic Center, and PEO AMD Logistics Center.
- Develop, conduct, and update above-element BMDS training, education, and familiarization to enhance decision maker and supporting staff awareness of BMDS capabilities, limitations, and employment and support considerations. Targeted student audiences for Block 04 will include: USSTRATCOM, USNORTHCOM, USPACOM, MDA staff, selected Joint and Service schools, and others from within the DoD, other Departments, Agencies, and organizations.
- Monitor Element level training for consistency with BMDS Above Element Training.

Project: 0703 Joint Warfighter Support Block 2004

MDA Exhibit R-2A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

- Develop overarching policies and procedures to transition BMDS capabilities to the Combatant Commands as they mature and transfer program management to the Military Departments, as directed.
- Develop policy/planning for Force Integration of Transferred Elements.
- Manage Services Boards of Directors' (BoD) curriculum to build knowledge base with CoComs senior warfighters. These BoDs involve the senior leadership of MDA and the Army, Navy, and Air Force and are coordinated/supported through the Service Liaison teams (Army, Navy and Air Force).

FY 2005 PLANNED PROGRAM:

- Refine and implement overarching logistics policies and plans to ensure the BMDS and its elements are supported in Block 04 and planned for in subsequent Blocks.
- Operate the MOC, as an enabler for supporting the BMDS for the Combatant Commanders.
-Plan for transfer of BMDS capabilities, as directed.
- Facilitate transition and planning for transition of BMDS capabilities, including GMD, C2BMC and others, as directed.
- Refine and conduct above-element BMD education and training for Block 04 BMDS, and plan for training of subsequent Blocks.
- Continue to manage Services Board of Directors'(BoD)curriculum to build knowledge base with CoComs senior warfighters. These BoDs involve the senior leadership of MDA and the Army, Navy and Air Force and are coordinated/supported through the Service Liaison teams (Army, Navy and Air Force).

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

Project: 0703 Joint Warfighter Support Block 2004

MDA Exhibit R-2A (PE 0603889C)

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								To	Total

UNCLASSIFIED

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603888C Ballistic Missile Defense Test and Targets	0	635,782	716,427	673,476	656,152	654,015	688,119	Continuing	Continuing
PE 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	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

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. TRW 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 supports USSTRATCOM's Military Utility Assessment.

Project: 0703 Joint Warfighter Support Block 2004

MDA Exhibit R-2A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**		

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
BMDS Support										
MOC	CPAF	JNIC/Denver, CO		1,000	2Q	50	2Q	CONT.	1,050	CONT.
Logistics	CPAF	JJNIC/Denver, CO		1,000	2Q	25	2Q	CONT.	1,025	CONT.
Training	CPAF	JNIC/Denver, CO		2,500	2Q	25	2Q	CONT.	2,525	CONT.
Subtotal Product Development			0	4,500		100		0	4600	

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										
SETA	CPIF	SPARTA/ Arlington,VA		7,300	1Q	3,142	1Q	CONT.	10,442	CONT.
Subtotal Support Costs			0	7,300		3,142		0	10442	

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
Regional Combatant Commanders Exercises										
JPOW 8	CPAF	THAAD/ Huntsville, AL		3,000	1/4Q			CONT.	3,000	CONT.
IMD 4.1	CPAF	USPACOM/ Camp H M Smith,HI		3,400	1/4Q			CONT.	3,400	CONT.
IMD 5.1	CPAF	USPACOM/ Camp H M Smith,HI		3,300	1/4Q	5,711	1/4Q	CONT.	9,011	CONT.

Project: 0703 Joint Warfighter Support Block 2004

MDA Exhibit R-3 (PE 0603889C)

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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** **0603889C Ballistic Missile Defense Products**			
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
JSW	CPAF	JNIC/ Denver, CO		1,965	1/4Q			CONT.	1,965	CONT.
IMD 5.2	CPAF	USPACOM/ Camp H M Smith,HI				3,735	1/4Q	CONT.	3,735	CONT.
Subtotal Test and Evaluation			0	11,665		9,446		0	21111	
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
Combatant Commanders Support										
USSTRATCOM	CPAF	USSTRATCOM/ San Diego, CA		150	1/4Q	74	1/4Q	CONT.	224	CONT.
EUCOM	CPAF	THAAD/ Huntsville, AL		50	1/4Q	25	1/4Q	CONT.	75	CONT.
PACOM	CPAF	USNORTHCOM/USS TRATCOM/ San Diego, CA		50	1/4Q	25	1/4Q	CONT.	75	CONT.
CENTCOM	CPAF			50	1/4Q	25	1/4Q	CONT.	75	CONT.
USNORTHCOM	CPAF	Colorado Springs, CO		50	1/4Q	25	1/4Q	CONT.	75	CONT.
USFK	CPAF			50	1/4Q	25	1/4Q	CONT.	75	CONT.
Subtotal Management Services			0	400		199		0	599	
Remarks										
Project Total Cost			0	23,865		12,887			36,752	
Remarks										

Project: 0703 Joint Warfighter Support Block 2004

MDA Exhibit R-3 (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

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 2004																												
IMD 3-02					▲																							
IMD 4-01								Δ																				
IDO and Fielding of Block 04						Δ																						
Military Utility Assessment (MUA) VI							Δ																					
Military Utility Assessment (MUA) V2								Δ																				
IDO & Fielding of Block 04									Δ		Δ	Δ																
MDA Operation Center (MOC)								Δ																				
IDO & Fielding of Block 2004					▲		Δ	Δ		Δ																		

Project: 0703 Joint Warfighter Support Block 2004

MDA Exhibit R-4 (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
BLOCK 2004							
IMD 3-02		1Q					
IMD 4-01		4Q					
IDO and Fielding of Block 04		2Q					
JPOW 8		3Q					
Military Utility Assessment (MUA) VI		3Q					
Military Utility Assessment (MUA) V2		4Q					
IDO & Fielding of Block 04	2Q	1Q,2Q,2Q	1Q,1Q,2Q,3Q,4Q	2Q	2Q	2Q	2Q
MDA Operation Center (MOC)		4Q					
Terminal Fury (TF) 04		1Q					
RSOI 04		2Q					
Eagle Resolve (ER) 04		3Q					
Ulchi Focus Lens (UFL) 04		4Q					
Terminal Fury (TF) 05			1Q				
Juniper Cobra (JC) 05			2Q				
RSOI 05			3Q				
Roving Sands (RS) 05			3Q				
UFL 05			4Q				
GMD Training Phase II Begins		2Q					
IDO & Fielding of Block 2004		1Q,3Q,4Q	2Q				

Project: 0703 Joint Warfighter Support Block 2004

MDA Exhibit R-4A (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0803 Joint Warfighter Support Block 2006	0	0	11,817	25,607	13,300	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: This project was funded under PE 0603880C (BMD System), Project 1055 for 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). The Joint Warfighter Support program ensures that warfighter operational perspectives and concerns are reflected in the development of Ballistic Missile Defense (BMD) capabilities. The Deputy for Force Structure Integration and Deployment (TR) works with the Combatant Commanders, Services and Joint Staff through seminars, wargames, and exercises to achieve this goal. Through interaction, areas of improvement in BMD capability are identified for action. This program supports planning for emergency deployments, and integration of USSTRATCOM/USNORTHCOM in required wargames, tabletops, experiments, System Integrated Tests and Hardware in the Loop Tests required for enhanced use of the Joint National Integration Center (JNIC) in support of operational concept development. Additionally, the program ensures the combatant commands are provided with a BMDS that continues to be supported logistically, by administering overarching logistics policies and practices. The Joint Warfighter Support Program will facilitate transition and transfer of BMD capabilities to the Services, as directed. The program will conduct and update an above-element training program that will educate and train staffs and senior decision makers about evolving BMDS capabilities.

The combatant commanders must establish a sequence of essential activities that must be completed to deliver missile defensive capabilities. To employ the BMDS, receiving combatant commanders and cognizant component commanders must develop the procedures and rules under which the element will be operated. The combatant and subordinate component commanders need to establish how the capability will be employed in autonomous operations as well as a part of the integrated BMDS. The hardware, software must be made available for initial operational checkout, familiarization, and training. The equipment will be operated in training and test modes only, pending operator certification for tactical employment of the capability. An integrated BMDS Level Training qualification and certification must be completed to provide the baseline level of training for the unit to effectively participate in BMDS integrated training. The combatant commander tactical teams and unit watch teams are trained in integrated tactical operations, exercising advanced skills and tasks needed to effectively employ the BMDS. The combatant commander and MDA shall establish in an MOA, the procedures and rules for conducting Test Bed RDT&E activities with BMDS assets that form the fielded BMDS capability. The MOA would address readiness needs, national security posture, test duration and recovery time, required BMDS Mode/State, restoration capability training and support, and steps to return to full operation. At the completion of these accomplishments, the Combatant Commander declares the Element or component operational and capable of being placed on alert.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
Regional Combatant Commander Exercises			7,841
RDT&E Articles (Quantity)			

In Block 2006 Regional Combatant Commanders Exercises will continue to explore emerging BMDS Concepts using tabletops, seminars, SWARFs, wargames and exercises; incorporate BMDS capabilities into combatant commanders, wargames, demonstrations, experiments and exercises; develop BMDS curriculum to build knowledge base with Senior Warfighters; incorporate BMDS capabilities and MOEs in wargames. Major system exercises and tests include BMDS IMD Wargame 06 to develop CONOPS and Tactics, Techniques and Procedures.

FY 2005 PLANNED PROGRAM:

- Develop preliminary CONOPS, TTP and ROE and integrate broad offense/defense with the Operational Community for Block 06 BMDS.

Project: 0803 Joint Warfighter Support Block 2006

MDA Exhibit R-2A (PE 0603889C)

0634

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 **0603889C Ballistic Missile Defense Products**

- Construct BMDS experiments, wargames and seminars with the Joint Staff, Services and Combatant Commanders. These activities provide the basis for the assessment, development and improvement of BMD capabilities.
- Build emergency operational deployment plans to protect against ballistic missile threats to the U.S., U.S. deployed forces and our allies and friends.
- Coordinate BMDS element transition planning to include Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF).
- Provide Service context to the BMDS Technical Objectives and Goals (TOG) and associated analysis.
- Coordinate/Support the Service Liaison teams (Army, Navy, and Air Force).
- Develop and coordinate deployment of BMDS emergency capabilities with the Joint Staff, the Services and the Combatant Commanders.
- Recipients of funding will be: the JNIC, Sea Based Program/PD 452, Army PEO Air Missile Defense, the SMDC-BL, and Det 4 AFC2TIG (ABL).

	FY 2003	FY 2004	FY 2005
Combatant Commanders Support			199
RDT&E Articles (Quantity)			

In Block 2006 Combatant Commanders Support will continue to bring joint combined coalition lessons learned to the developer; participate in Joint Combined Coalition Doctrine, Operational Concepts, CONOPS, CONPLANs, OPLANS, TTP and ROE Development; coordinate block deployment plan; engage in C2 development; develop Operational Concepts and Operational Architectures through the Operational Concept Team (OCT); facilitate intra/inter Theater CONOPS Development; facilitate program transition to the services; maintain interactions with transitioned programs; conduct planning for fielding BMDS capabilities; execute warfighter interface process.

FY 2005 PLANNED PROGRAM:

- Develop BMD operational concepts and associated operational architecture that will enable rapid integration of the BMDS elements into the Combatant Commanders Warfighting capability.
- Recipients of funding will be: USSTRATCOM, PACOM, EUCOM, CENTCOM, USNORTHCOM and USFK.

	FY 2003	FY 2004	FY 2005
SETA			3,677
RDT&E Articles (Quantity)			

Represents Scientific, Engineering, Technical and Assistance support provided to MDA HQ in support of Block 2006 efforts.

Project: 0803 Joint Warfighter Support Block 2006

MDA Exhibit R-2A (PE 0603889C)

0635

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

	FY 2003	FY 2004	FY 2005
BMDS Support			100
RDT&E Articles (Quantity)			

In Block 2006 BMDS Support will continue to coordinate MDA support with the Services, other Agencies of the BMDS and its elements and components for the Combatant Commanders. The coordination includes activation of the Test Bed & Operational Environment of the BMDS; operational support and logistics support of the BMDS.

FY 2005 PLANNED PROGRAM:

- Refine and implement overarching logistics policies and plans to ensure the BMDS and its' elements are supported in Block 04 and planned for in subsequent Blocks.
- Operate a Missile Defense Agency Operation Center (MOC), as an enabler for support to the Combatant Commands.
- Facilitate planning for transition and transfer of BMDS capabilities to the Services, as directed.
- Refine and conduct above-element BMD education and training for Block 04 BMDS, and plan for training of subsequent Blocks.

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

Project: 0803 Joint Warfighter Support Block 2006   MDA Exhibit R-2A (PE 0603889C)

0636

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 **0603889C Ballistic Missile Defense Products**				
	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 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	Continuing	Continuing

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.

Project: 0803 Joint Warfighter Support Block 2006

MDA Exhibit R-2A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

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
BMDS Support										
JNIC	CPFF	JNIC/ Denver, CO				100	1/2Q	CONT.	100	CONT.
Subtotal Product Development			0	0		100		0	100	

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										
SETA	CPIF	SPARTA/ Arlington, VA				3,677	1Q	CONT.	3,677	CONT.
Subtotal Support Costs			0	0		3,677		0	3677	

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
Regional Combatant Commander Exercises										
IMD 5.1	CPAF	JNIC/PACOM/NORTHCOM/USSTRATCOM/ CO/Camp Smith, HI/NE				5,711	1/4Q	CONT.	5,711	CONT.

Project: 0803 Joint Warfighter Support Block 2006

MDA Exhibit R-3 (PE 0603889C)

0638

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 **0603889C Ballistic Missile Defense Products**				
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
IMD 5.2	CPAF	JNIC/PACOM/NORTHCOM/USSTRATCOM/ CO/Camp Smith, HI/NE				2,130	1/4Q	CONT.	2,130	CONT.
Subtotal Test and Evaluation			0	0		7,841		0	7841	
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
Combatant Commanders Support										
USSTRATCOM	SS/CPAF	USSTRATCOM/ Omaha, NE				49	1/4Q	CONT.	49	CONT.
EUCOM	SS/CPAF	THAAD/ Huntsville, AL				30	1/4Q	CONT.	30	CONT.
PACOM	SS/CPAF	PACOM/ Camp Smith, HI				30	1/4Q	CONT.	30	CONT.
CENTCOM	SS/CPAF	CENTCOM				30	1/4Q	CONT.	30	CONT.
USNORTHCOM	SS/CPAF	USNORTHCOM/ Colorado Springs, CO				30	1/4Q	CONT.	30	CONT.
USFK	SS/CPAF					30	1/4Q	CONT.	30	CONT.
Subtotal Management Services			0	0		199		0	199	
Remarks										
Project Total Cost			0	0		11,817			11,817	
Remarks										

Project: 0803 Joint Warfighter Support Block 2006

MDA Exhibit R-3 (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products

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																												
IDO & Fielding of Block 06													Δ															
IMD 6-01														Δ														
IMD 6-02																Δ												

Project: 0803 Joint Warfighter Support Block 2006

MDA Exhibit R-4 (PE 0603889C)

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MDA Exhibit R-4A Schedule Detail		Date
		February 2004

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
BLOCK 2006							
Blue Flag (BF)				3Q			
CENTCOM IL				1Q			
DP				4Q			
IDO & Fielding of Block 06				1Q			
IMD 6-01				2Q			
IMD 6-02				4Q			
Joint Project Optic Windmil (JPOW) 8				3Q			
Juniper Cobra (JC)				2Q			
RSOI				2Q			
Terminal Fury (TF)				1Q			
Ulchi Focus Lens (UFL)				4Q			
Unified Defense (UD)				2Q			

Project: 0803 Joint Warfighter Support Block 2006

MDA Exhibit R-4A (PE 0603889C)

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UNCLASSIFIED

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0903 Joint Warfighter Support Block 2008	0	0	0	0	13,299	30,648	32,759
RDT&E Articles Qty	0	0	0	0	0	0	0

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). The Joint Warfighter Support program ensures that warfighter operational perspectives and concerns are reflected in the development of Ballistic Missile Defense (BMD) capabilities. The Deputy for Force Structure Integration and Deployment (TR) works with the Combatant Commanders, Services, Joint Staff, OSD and others through workshops, seminars, tabletops, wargames, and exercises to achieve this goal. Through interaction, areas of improvement in BMD capability are identified for action. This program supports planning for emergency deployments, tabletops, and integration of USSTRATCOM/USNORTHCOM and other Combatant Commanders in required wargames, tabletops, experiments, System Integrated Tests and Hardware in the Loop Tests required for enhanced use of JNIC in support of operational concept development. Additionally, the program ensures that combatant commanders are provided with a BMDS that continues to be supported logistically, by administering and evolving overarching logistics policies and practices. The Joint Warfighter Support Program will facilitate transition and transfer of BMD capabilities to the Services, as directed. The program will conduct and update an above-element training program that will educate and train staffs and senior decision makers about evolving BMDS capabilities.

The combatant commanders must establish a sequence of essential activities that must be completed to deliver missile defensive capabilities. To employ the BMDS, receiving combatant commanders and cognizant component commanders must develop the procedures and rules under which the element will be operated. The combatant and subordinate component commanders need to establish how the capability will be employed in autonomous operations as well as a part of the integrated BMDS. The hardware, software must be made available for initial operational checkout, familiarization, and training. The equipment will be operated in training and test modes only, pending operator certification for tactical employment of the capability. An integrated BMDS Level Training qualification and certification must be completed to provide the baseline level of training for the unit to effectively participate in BMDS integrated training. The combatant commander tactical teams and unit watch teams are trained in integrated tactical operations, exercising advanced skills and tasks needed to effectively employ the BMDS. The combatant commander and MDA shall establish in an MOA, the procedures and rules for conducting Test Bed RDT&E activities with BMDS assets that form the fielded BMDS capability. The MOA would address readiness needs, national security posture, test duration and recovery time, required BMDS Mode/State, restoration capability training and support, and steps to return to full operation. At the completion of these accomplishments, the Combatant Commander declares the Element or component operational and capable of being placed on alert.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
Funding in this project will be programmed in FY 2007.			
RDT&E Articles (Quantity)			

Project: 0903 Joint Warfighter Support Block 2008 · · · · · · · · · · MDA Exhibit R-2A (PE 0603889C)

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UNCLASSIFIED

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

C. Other Program Funding Summary

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	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

Project: 0903 Joint Warfighter Support Block 2008

MDA Exhibit R-2A (PE 0603889C)

0643

	Date
MDA Exhibit R-2A RDT&E Project Justification	**February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603889C Ballistic Missile Defense Products**

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 the Military Utility Assessment.

Project: 0903 Joint Warfighter Support Block 2008

MDA Exhibit R-2A (PE 0603889C)

0644

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 0603889C Ballistic Missile Defense Products

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 2008																												
Regional Combatant Commanders Exercises																					△—————————————————————△							

Project: 0903 Joint Warfighter Support Block 2008

MDA Exhibit R-4 (PE 0603889C)

0645

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 **0603889C Ballistic Missile Defense Products**

Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
BLOCK 2008							
Regional Combatant Commanders Exercises						1Q-4Q	1Q-4Q

Project: 0903 Joint Warfighter Support Block 2008

MDA Exhibit R-4A (PE 0603889C)

0646

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0204 Joint National Integration Center (JNIC)	0	66,554	70,670	72,177	75,691	76,906	81,118
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Beginning in FY 2004, funding for this effort will transition from Ballistic Missile Defense System (BMDS) Program Element (PE) (0603880C-Project 1056) to the new Ballistic Missile Defense Products PE (0603889C-Project 0204).

A. Mission Description and Budget Item Justification

The mission of the JNIC is to develop and operate those portions of the BMDS Test Bed that comprise a robust suite of rapid prototyping and missile defense test and evaluation capabilities, which ensures BMDS elements are acquired and integrated into an interoperable, layered system, while simultaneously supporting real-world operations of designated BMDS elements.

As the key-operating element of the BMDS Test Bed, the JNIC is a critical component of BMDS Block 04/06 development that:

- Supports the development of the overarching Command and Control, Battle Management, and Communications (C2BMC) element of the Ballistic Missile Defense System (BMDS.)
- Is a "host center services provider" for BMDS elements; and supports a concurrent test and operations architecture as directed.
- Provides assured connectivity support to designated Combatant Commands (COCOM).
- Supports the operations of fielded BMDS elements.
- Plans, conducts, and supports BMDS testing and analysis.
- Establishes a core capability for exercising, evaluating, analyzing and refining advanced missile defense concepts critical to effective integrated missile defense operations in an emerging, complex threat environment.
- Provides the full spectrum of activities (senior leader seminars, workshops, demonstrations, wargames, and exercises) involved in developing integrated missile defense concepts of operation (CONOPS) and tactics, techniques and procedures (TTPs).
- Develops, conducts, and supports missile defense modeling and simulation for the overall BMDS, its segments and program elements.
- Facilitates international cooperation and support for the BMDS through the development and execution of missile defense seminars, workshops, wargames, and other multinational activities.
- Provides dedicated engineering and test support for emerging MDA capabilities, projects, experiments, and new-start programs.

B. Accomplishments/Planned Program

	FY 2003	FY 2004	FY 2005
JNIC Development & Ops		62,351	66,293
RDT&E Articles (Quantity)			

Beginning in FY 2004, funding for this effort will reside in the BMD Products Program Element (0603889C).

The FY04 and FY05 budget provides the foundation for the operation and staffing of the JNIC. The funding maintains a secure facility that includes the computers, communications, networks, flight, ground and simulation test bed environments, wargaming complex, environmental support, and other fixed cost capabilities essential for the execution of MDA programs. These efforts directly support the MDA objectives to complete, verify and test the Initial Defensive Capability; put the BMDS on alert; develop procedures and logistics to perform and sustain concurrent testing and operations; and enhance the BMDS capability.

Project: 0204 Joint National Integration Center (JNIC)   MDA Exhibit R-2A (PE 0603889C)

0647

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 **0603889C Ballistic Missile Defense Products**

Additional required Test Bed baselines within the JNIC, and their need for assured connectivity to external BMDS element development labs and centers, will require continued support and limited expansion. The JNIC houses and sustains a robust, scaleable, and flexible integration and test environment that has the capability to support both acquisition and warfighter communities as part of an IDO capability for both the GFC/C and BMDS C2BMC. Funding for information technology (IT) directly supports communication interfaces and services upon which C2BMC and GFC/C element components rely. JNIC IT services support the BMDS Test Bed and facilitate the execution of concurrent testing and operations by directed BMDS elements operating from the JNIC.

The budget also continues to provide a core capability to support the integration of the overarching BMDS. The funds build and retain a corporate knowledge base comprised of leading technical experts with the capability to respond quickly to customer requirements and perform technical MDA missions. Funds support the management, key subject matter experts, unique hardware, software, and licenses for the execution and technical support of operator-in-the-loop Wargames, Joint Warfighter Exercises and Experiments, the Multi-Mission Integration Cell (MMIC), Ballistic Missile Defense Interoperability (BMDI), and Integrated Missile Defense Analyses (IMDA).

The funding increase starting in FY04, will allow the JNIC to transition into a Host Center Services provider with an infrastructure operational availability exceeding 99% for activated BMDS elements, and an ability to support concurrent test and operations. The JNIC will:

- Design, implement, verify, operate and maintain Host Center Service interfaces and services.
- Coordinate, design, and implement external communication circuit connectivity.
- Manage delivery of Host Center Services products via common access points/JNIC service delivery points to provide, as directed, 24/7/365 operations support while concurrently testing and improving the functional capabilities and service levels
- Identify targeted information content specifications to assist in migration toward network-centric warfare consistent information management tenets.

In previous years, required modernization was deferred to support growing missions, resulting in a gradual aging and degradation of infrastructure and information management systems support. Beginning in FY05 the JNIC will upgrade and enhance obsolete technology and correct electrical, mechanical, communications, and architectural code compliance deficiencies. The JNIC infrastructure will then be sustained to ensure uninterrupted Host Center Services for concurrent testing and operations that will allow MDA to assess and integrate emerging technologies and maturing components quickly into the BMDS.

	FY 2003	FY 2004	FY 2005
Gov. Project & Support		4,203	4,377
RDT&E Articles (Quantity)			

These funds provide for salaries and support to government personnel.

Project: 0204 Joint National Integration Center (JNIC)

MDA Exhibit R-2A (PE 0603889C)

0648

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	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

Project: 0204 Joint National Integration Center (JNIC)　　　　　　　　　　　　　　　　　　　　　MDA Exhibit R-2A (PE 0603889C)

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

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

D. Acquisition Strategy

The JNIC is essential to execution of the MDA's capability-based acquisition strategy. This emphasizes assessment, spiral-development testing and evolutionary acquisition through the definition of two-year capability blocks. As a Host Center Services provider, the JNIC will host some BMDS element components and provide assured connectivity to designated COCOM in an operational environment while concurrently providing RDT&E support for BMDS element and component program managers in the acquisition community. The JNIC will conduct interoperability testing, modeling and simulation development, wargaming, BMD exercise support, system-level engineering support, and related BMDS analyses to ensure the successful integrated deployment of BMDS element capabilities.

The JNIC is operated by missile defense subject matter experts composed of Government military and civilian personnel, Federally Funded Research and Development Center (FFRDC), JNIC Technical Advisory and Assistance Services (JTAAS), and major defense contractors.

Project: 0204 Joint National Integration Center (JNIC)   MDA Exhibit R-2A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

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
JNIC Development & Ops										
JNIC	MIPR	50 Space Wing/ Schriever AFB, CO		1,037	1Q	1,062	1Q	CONT.	2,099	CONT.
Subtotal Support Costs			0	1,037		1,062		0	2099	

Remarks

These funds are for utilities and base communications as specified in the Interservice Support Agreement with the 50th Space Wing.

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
JNIC Development & Ops										
JNIC	C/CPAF	Northrop Grumman Mission Sys./ CO		54,698	2Q	58,492	2Q	CONT.	113,190	CONT.
Subtotal Test and Evaluation			0	54,698		58,492		0	113190	

Remarks

These funds are executed by the Integration Center Research and Development Contractor.

Project: 0204 Joint National Integration Center (JNIC)   MDA Exhibit R-3 (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**			
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
JNIC Development & Ops										
JNIC	C/FFP	SRS/ Colorado Springs, CO		4,792	4Q	4,881	4Q	CONT.	9,673	CONT.
JNIC	C/FFRDC	Mitre Corp/ Colorado Springs, CO		1,824	1Q	1,858	1Q	CONT.	3,682	CONT.
Gov. Project & Support										
JNIC		JNIC/ Colorado Springs, CO		3,235	1/4Q	3,375	1/4Q	CONT.	6,610	CONT.
USN		Naval Research Laboratory/ Colorado Springs, CO		968	1/4Q	1,002	1/4Q	CONT.	1,970	CONT.
Subtotal Management Services			0	10,819		11,116			0	21935
Remarks										
These funds provide government military and civilian personnel, as well as FFRDC and Technical Advisory and Assistance Services employees, for JNIC operations and oversight of the Integration Center Research and Development Contractor.										
Project Total Cost			0	66,554		70,670				137,224
Remarks										

Project: 0204 Joint National Integration Center (JNIC)

MDA Exhibit R-3 (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

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
JNIC																												
Aegis Ballistic Msl Defense Fleet Msl Tests					△——																							△
Aegis BMD FMT #6					△																							
Aegis BMD FMT #7										△																		
Aegis BMD FMT #8												△																
Aegis BMD FMT #9														△														
Aegis BMD FMT #10																△												
Aegis BMD FMT #11																		△										
Aegis BMD FMT #12																				△								
Aegis BMD FMT #13																						△						
Aegis BMD FMT #14																								△				
Aegis BMD FMT #15																										△		
Aegis BMD FMT #16																												△
Aegis Critical Measurement Program Tests						△——																					△	
Arrow Caravan Test							△—△																					
Arrow System Test					△——																			△			

Project: 0204 Joint National Integration Center (JNIC)

MDA Exhibit R-4 (PE 0603889C)

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UNCLASSIFIED

			MDA Exhibit R-4 Schedule Profile				Date
							February 2004

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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
JNIC																												
Airborne Laser System Integrated Flight Test Spt												△														△		
Nimble Titan Wargame						△																				△		
Integrated Missile Defense (IMD) Wargames						△																						△
IMD 04-1 Battle Planning Exercise						△																						
IMD 04-1 Command & Control Simulations						△	△																					
IMD 04-1 Wargame								△																				
IMD 05-1 Battle Planning Exercise								△																				
IMD 05-1 Command & Control Simulations									△																			
IMD 05-1 Wargame										△																		
IMD 05-2 Battle Planning Exercise										△																		
IMD 05-2 Command & Control Simulations											△																	
IMD 05-2 Wargame											△																	
IMD 06 Battle Planning Exercise													△															
IMD 06 Command & Control Simulations														△														
IMD 06 Wargame															△													

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							Date
MDA Exhibit R-4 Schedule Profile							**February 2004**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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
JNIC																												
IMD 07 Battle Planning Exercise																		Δ										
IMD 07 Command & Control Simulations																			Δ									
IMD 07 Wargame																				Δ								
IMD 08 Battle Planning Exercise																						Δ						
IMD 08 Command & Control Simulations																							Δ					
IMD 08 Wargame																								Δ				
IMD 09 Battle Planning Exercise																										Δ		
IMD 09 Command & Control Simulations																											Δ	
IMD 09 Wargame																												Δ
Missile Defense Integrated Exercises (MDIE)						Δ————————————————————————————————————																						Δ
MDIE 4a						Δ																						
MDIE 4b							Δ																					
MDIE 5a										Δ																		
MDIE 5b											Δ																	
MDIE 6a														Δ														

Project: 0204 Joint National Integration Center (JNIC)   MDA Exhibit R-4 (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

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
JNIC																												
MDIE 6b															Δ													
MDIE 7a																		Δ										
MDIE 7b																			Δ									
MDIE 8a																						Δ						
MDIE 8b																							Δ					
MDIE 9a																										Δ		
MDIE 9b																											Δ	
Multinational Wargame													Δ														Δ	
Multinational Wargame 06 Battle Planning Exercise													Δ															
Multinational Wargame 06 Cmd & Control Simulations														Δ														
Multinational Wargame 06														Δ														
Multinational Wargame 07 Battle Planning Exercise																		Δ										
Multinational Wargame 07 Cmd & Control Simulations																			Δ									
Multinational Wargame 07																			Δ									
Multinational Wargame 08 Battle Planning Exercise																						Δ						

Project: 0204 Joint National Integration Center (JNIC)

MDA Exhibit R-4 (PE 0603889C)

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	Date
MDA Exhibit R-4 Schedule Profile	**February 2004**

APPROPRIATION/BUDGET ACTIVITY	R-1 NOMENCLATURE
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	**0603889C Ballistic Missile Defense Products**

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
JNIC																												
Multinational Wargame 08 Cmd & Control Simulations																							Δ					
Multinational Wargame 08																							Δ					
Multinational Wargame 09 Battle Planning Exercise																											Δ	
Multinational Wargame 09 Cmd & Control Simulations																												Δ
Multinational Wargame 09																												Δ
BMDS System Integrated Flight Tests Tech Suppt					Δ──Δ																						
Execute & Support Core Exercise Capability					Δ──Δ																						

Project: 0204 Joint National Integration Center (JNIC)

MDA Exhibit R-4 (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**				
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
JNIC							
Aegis Ballistic Msl Defense Fleet Msl Tests		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Aegis BMD FMT #6		1Q					
Aegis BMD FMT #7			2Q				
Aegis BMD FMT #8			4Q				
Aegis BMD FMT #9				2Q			
Aegis BMD FMT #10				4Q			
Aegis BMD FMT #11					2Q		
Aegis BMD FMT #12					4Q		
Aegis BMD FMT #13						2Q	
Aegis BMD FMT #14						4Q	
Aegis BMD FMT #15							2Q
Aegis BMD FMT #16							4Q
Aegis Critical Measurement Program Tests		2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q
Arrow Caravan Test		3Q-4Q					
Arrow System Test		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q
Airborne Laser System Integrated Flight Test Spt			4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-2Q
Nimble Titan Wargame		2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-2Q
Integrated Missile Defense (IMD) Wargames		2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
IMD 04-1 Battle Planning Exercise		2Q					
IMD 04-1 Command & Control Simulations		2Q,3Q					
IMD 04-1 Wargame		4Q					
IMD 05-1 Battle Planning Exercise		4Q					
IMD 05-1 Command & Control Simulations			1Q				
IMD 05-1 Wargame			2Q				
IMD 05-2 Battle Planning Exercise			2Q				
IMD 05-2 Command & Control Simulations			3Q				
IMD 05-2 Wargame			3Q				
IMD 06 Battle Planning Exercise				2Q			
IMD 06 Command & Control Simulations				3Q			
IMD 06 Wargame				4Q			

Project: 0204 Joint National Integration Center (JNIC)   MDA Exhibit R-4A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**		
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
IMD 07 Battle Planning Exercise					2Q		
IMD 07 Command & Control Simulations					3Q		
IMD 07 Wargame					4Q		
IMD 08 Battle Planning Exercise						2Q	
IMD 08 Command & Control Simulations						3Q	
IMD 08 Wargame						4Q	
IMD 09 Battle Planning Exercise							2Q
IMD 09 Command & Control Simulations							3Q
IMD 09 Wargame							4Q
Missile Defense Integrated Exercises (MDIE)		2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q
MDIE 4a		2Q					
MDIE 4b		3Q					
MDIE 5a			2Q				
MDIE 5b			3Q				
MDIE 6a				2Q			
MDIE 6b				3Q			
MDIE 7a					2Q		
MDIE 7b					3Q		
MDIE 8a						2Q	
MDIE 8b						3Q	
MDIE 9a							2Q
MDIE 9b							3Q
Multinational Wargame				2Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q
Multinational Wargame 06 Battle Planning Exercise				2Q			
Multinational Wargame 06 Cmd & Control Simulations				3Q			
Multinational Wargame 06				3Q			
Multinational Wargame 07 Battle Planning Exercise					2Q		
Multinational Wargame 07 Cmd & Control Simulations					3Q		
Multinational Wargame 07					3Q		
Multinational Wargame 08 Battle Planning Exercise						2Q	

Project: 0204 Joint National Integration Center (JNIC)

MDA Exhibit R-4A (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products

Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Multinational Wargame 08 Cmd & Control Simulations						3Q	
Multinational Wargame 08						3Q	
Multinational Wargame 09 Battle Planning Exercise							2Q
Multinational Wargame 09 Cmd & Control Simulations							3Q
Multinational Wargame 09							3Q
BMDS System Integrated Flight Tests Tech Suppt		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
Execute & Support Core Exercise Capability		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q

Project: 0204 Joint National Integration Center (JNIC)

MDA Exhibit R-4A (PE 0603889C)

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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 0603889C Ballistic Missile Defense Products					

COST ($ in Thousands)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0602 Program-Wide Support	0	15,476	16,197	20,345	20,619	22,192	24,113
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	15,476	16,197
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.

Project: 0602 Program-Wide Support   MDA Exhibit R-2A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**

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 0603890C Ballistic Missile Defense System Core	0	445,356	479,764	492,988	527,541	539,210	568,365	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

Project: 0602 Program-Wide Support

MDA Exhibit R-2A (PE 0603889C)

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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 **0603889C Ballistic Missile Defense Products**				
	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
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

Project: 0602 Program-Wide Support

MDA Exhibit R-2A (PE 0603889C)

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