

UNCLASSIFIED

MDA Exhibit R -2RDT&EBudgetItemJustification	Date February 2003
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APPROPRIATION/BUDGETACTIVITY 4. Advanced Component Development and Prototypes (ACD& P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
Total PECost	3655089	3103844	3613266	3841412	2078522	1908511	1482389	1437923
3011 Block 2004 Test Bed	636357	451888	0	0	0	0	0	0
0708 Ground -Based Midcourse Defense (GMD) Test Bed Block 2004	0	0	1205431	867509	0	0	0	0
3012 Ground -Based Midcourse Defense (GMD) Development and Test Bed Upgrades	2437733	2108947	0	0	0	0	0	0
0808 Ground -Based Midcourse Defense (GMD) Test Bed Block 2006	0	0	1605368	1773621	1354462	1235116	0	0
0908 Ground -Based Midcourse Defense (GMD) Test Bed Block 2008	0	0	0	0	0	0	878477	877297
3020 Sea -Based Midcourse Defense (SMD)	446475	384312	0	0	0	0	0	0
0709 AEGIS Ballistic Missile Defense Block 2004	0	0	648306	893600	97725	0	0	0
0809 AEGIS Ballistic Missile Defense Block 2006	0	0	23859	72500	376828	299321	0	0
0909 AEGIS Ballistic Missile Defense Block 2008	0	0	0	116282	186281	322353	470045	386358
0009 AEGIS Ballistic Missile Defense Block 2010	0	0	0	0	0	7808	104346	144568
0402 Japanese Cooperative Program	0	0	54000	73000	25000	0	0	0
3050 Segment Common Engineering and Integration	22408	94907	0	0	0	0	0	0
3090/0602 Program Operations	112116	63790	76302	44900	38226	43913	29521	29700

A. Mission Description and Budget Item Justification

Implementation of the Ballistic Missile Defense System (BMDS) requires the development of biennial block capabilities where the subsequent block capability will build on and be integrated into the predecessor blocks. Block capabilities are built by using the elements and their interchangeable components to integrate as single BMDS and provide layered defense against ballistic missiles during all flight phases, Boost, Midcourse, and Terminal, using multiple basing modes and phenomenology.

As part of the total BMDS, the Midcourse Defense Segment (MDS) Program Element (PE) funds the Midcourse -related element portions of Blocks 2004, 2006, and 2008 and other Midcourse -related mission area investment activities. The BMDS elements in this Midcourse Defense Segment (MDS) provide a hit-to-kill capability to counter ballistic missiles in the midcourse stage of flight. In this capacity, the MDS provides the midcourse defense layer of the overall Ballistic Missile Defense System (BMDS) via a ground -based system element (referred to as Ground -based Midcourse Defense (GMD)) and a sea -based system element (referred to as Aegis Ballistic Missile Defense (Aegis BMD) formerly referred to as Sea -based Midcourse Defense (SMD)).

Additionally, the MDS provides for the initial development and construction of a multi -part BMDS Test Bed, each part having independent ability to demonstrate midcourse capabilities. The Test Bed could also be used to test the capabilities of other defense layers (i.e., boost and terminal phases) as they develop and facilitate the integration of those layers in the BMDS.

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

The flowdown of Ballistic Missile Defense System (BMDS) capability specifications resulting from Missile Defense National Team efforts in Command and Control, Battle Management, and Communications (C2BMC) and Systems Engineering & Integration will guide the integration of Targets and Countermeasures, Test and Evaluation, and Program Operations Support into the BMDS System, the BMDS C2BMC architecture, and the BMDS Test Bed.

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The MDS develops and demonstrates increasingly robust technologies and capabilities to enable incremental improvements and block upgrades to the BMDS over time, and incorporates:

- 1) Countermeasures resistance.
- 2) Use of a Combined Test Force (The CTF, under a single unified organization, integrates developmental and operational assessments, shares test resources, collects and assesses test data, collectively resolves test issues, and minimizes the duplication of test resources and the time required to execute required testing).
- 3) Expanded engagement conditions.
- 4) Multiple target and intercept test launch sites.
- 5) Flexible engagement scenarios.
- 6) Expanded test range/engagement areas.
- 7) Improved test infrastructure.
- 8) Deployed ship-board radar sensors.
- 9) Other sensors.

Implementation of these improvements will enhance the realism in testing and evaluation of various BMD technologies and systems.

Consistent with the MDA block management framework, the Ground-based Midcourse Defense (GMD) System Element of the MDS consists of Blocks 2004, 2006, and 2008:

- 1) The GMD Block 2004 represents the early development and construction of the initial GMD part of the BMD System Test Bed also including the initial defensive operational capability (covered under Projects 3011 and 0708) as well as the sea-based X-band radar and an upgraded early warning radar at Beale AFB.
- 2) The GMD Block 2006 includes development of capabilities to detect, track, intercept, and defeat ballistic missile threats to the U.S. during the midcourse phase of flight as well as GMD improvements to the BMD System Test Bed (covered under Projects 3012 and 0808). This could include exploring the acquisition of additional sensors such as an X-band radar.
- 3) The GMD Block 2008 includes continued development of GMD capabilities as well as integrated testing of the multi-layered BMD components (covered under Project 0908).

The GMD element objectives include:

- 1) Developing and deploying (as directed) the capability to defeat Ballistic Missile Threats in the Midcourse phase of flight,
- 2) Constructing, operating and maintaining the GMD Test Bed,
- 3) Continuing testing of development articles (ground and flight tests), and
- 4) Expanding GMD capability.

The Aegis Ballistic Missile Defense (Aegis BMD) element (formerly Sea-based Midcourse Defense (SMD)) of the Midcourse Defense Segment (MDS) of the Ballistic Missile Defense System (BMDS) provides for the capability for U.S. Navy Surface Combatants to detect, track, intercept, and destroy Short Range Ballistic Missiles (SRBMs) to Intermediate Range Ballistic Missiles (IRBMs) in the terminal and midcourse phases of the battlespace while forward deployed or on Fleet Missile Defense Patrol in defense of the nation, deployed U.S. forces, friends, and allies. The extent of Aegis BMD capability against short range missiles in the terminal phase is being explored. The Aegis BMD element builds upon the existing Aegis Weapons System (AWS) and the Standard Missile (SM) infrastructure deployed in Aegis Cruisers and Destroyers.

System development and testing will be integrated with the BMD System Test Bed and architecture fully supporting the Missile Defense Agency's (MDA) capability based acquisition approach for BMD. Each technological advance in Aegis BMD will be evaluated by the Government and industry team for upgrades to the BMD System Test Bed/architecture in accordance with annual MDA decision reviews.

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The Aegis BMDS System element consists of five (5) major efforts:

- 1) Block2004 -will be technically capable of initial defensive operations.
- 2)Block2006 -focuses on development of improved prototype radar discrimination.
- 3)Block2008 -focuses on development of a fully integrated radar system.
- 4)Block2010 -integrate with the Navy developed Aegis Open Architecture System.
- 5)Japan Cooperative Research -continues cooperative research in Ballistic Missile Defense with the Japan Defense Agency (JDA).

Aegis BMD element objectives include the following:

- 1)Provide BMD from configured Aegis Cruisers and Destroyers against short through intermediate range ballistic missiles using capability based spiral development.
- 2)Demonstrate through live fire testing (using SM -3 guided missiles controlled by BMD modified AWS) each hit-to-kill capability improvement against more difficult ballistic missiles.
- 3)Develop the forward sensor capabilities of the Aegis AN/SPY -1 Radar integrated into the BMDS.
- 4)Demonstrate forward sensor capabilities in Ground -based Midcourse Defense (GMD) Integrated Flight Tests (IFTs).
- 5)Modify existing Aegis Cruisers and Destroyers provide SM -3 missiles.
- 6)Develop and demonstrate enhanced discrimination capabilities.
- 7)Conduct a Short Range Ballistic Missile (SRBM) low exo -atmospheric experiment to test the ability to expand the Aegis BMD element engagement volume to lower engagement altitudes.
- 8)Continue the U.S./Japan Cooperative Research.
- 9)Expand the Aegis based defense of ballistic missiles by integrating and testing the BMDS interceptor being developed by the Missile Defense Agency (MDA).

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

B. Program Change Summary	FY2002	FY2003	FY2004	FY2005
Previous President's Budget (FY2003 PB)	3762250	3195104	3071581	3016343
Current President's Budget (FY2004 PB)	3655089	3103844	3613266	3841412
Total Adjustments	-107161	-91260	541685	825069
Congressional Specific Program Adjustments	0	-9600	0	0
Congressional Undistributed Adjustments	-29972	-55125	0	0
Reprogrammings	2754	-26535	541685	825069
SBIR/STTR Transfer	-79943	0	0	0

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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
3011 Block 2004 Test Bed	636357	451888	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Note: This Project has been restructured beginning in FY2004 to Project 0708. This restructure represents MDA's Block development and management framework for the BMDS.

The Ground-based Midcourse Defense (GMD) System Element of the Midcourse Defense Segment (MDS) consists of two (2) major efforts: 1) development and construction of the initial GMD parts of the BMDS Test Bed (covered under Project 3011), and 2) development of capabilities to detect, track, intercept, and defeat ballistic missile threats to the U.S. during the midcourse phase of flight as well as GMD improvements to the BMDS Test Bed (covered under Project 3012, GMDD Development and Test Bed Upgrades).

Projects 3011, Block 2004 Test Bed, provides a Ballistic Missile Defense System (BMDS) Test Bed capability to address realistic test and evaluation efforts and improved demonstration capabilities. This multi-part Test Bed will use initial developmental hardware and software assets to validate the Ground-based Midcourse Defense (GMD) operational concept and to provide increased realism for GMD testing with various locations for flight testing. Together, the initial GMD parts of the BMDS Test Bed will provide:

- 1) More realistic test and evaluation through geographically dispersed assets and an operationally representative environment to check out component hardware and software integration.
- 2) Distributed, integrated ground testing.
- 3) GMD Fire Control and Communication to support the Test Bed.
- 4) Sensor assets including the upgraded COBRADAN radar in Shemya and development of a Sea-Based Test X-Band Radar (SBX).
- 5) Validation of construction, transportation, site activation, and logistics concepts supporting future deployment options.
- 6) Leveraging of ongoing basic development program activities in Project 3012.
- 7) Incorporation of Aegis Weapon System (AWS) radar to support GMD Integrated Flight Test Program as soon as practicable.
- 8) Full spectrum of testing to demonstrate system performance including Multiple Simultaneous Engagements (MSEs).
- 9) Common test infrastructure (for ground- and sea-based elements) that is expandable to boost and terminal segments.

Project 3012 will provide for the development, test conduct, and improve upon and expand the early BMDS Test Bed capabilities.

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

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B. Accomplishments/Planned Program	FY2002	FY2003	FY2004	FY20 05
Ground-Based Interceptor (GBI)	156849	137027	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION.

--Note: This effort will move to Project 0708 in FY2004 and 2005.

The Ground -Based Interceptor consists of an Exo -atmospheric Kill Vehicle (EKV) and a Launch Vehicle.

FY2002 Accomplishments:

- Initiated acquisition of five (5) interceptors with spare boost vehicles for Ft. Greely.
- Initiated acquisition of six (6) common silos, launch site components for Ft. Greely.
- Initiated acquisition of Command Launch Equipment (CLE) and other support equipment for Ft. Greely.

FY2003 Planned Accomplishments:

- Continues acquisition of five (5) interceptors with spare boost vehicles for Ft. Greely.
- Continues acquisition of six (6) common silos, launch site components for Ft. Greely.
- Continues acquisition of command launch equipment and other support equipment for Ft. Greely.

	FY2002	FY2003	FY2004	FY2005
Cobra Dane Upgrade	11600	47500	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION.

--Note: This effort will move to Project 0708 in FY2004 and 2005.

Cobra Dane is an existing radar used to detect and track ballistic missile launches. This project upgrades both hardware and software to improve overall performance.

FY2002 Accomplishments:

- Initiated hardware design.
- Initiated hardware build.
- Initiated facility modification design.

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FY2003 Planned Accomplishments:
 -Initiate hardware installation.
 -Complete software build.
 -Complete facility modification.

	FY2002	FY2003	FY2004	FY2005
GMD Fire Control & Communications	51190	45689	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION.

--Note: This effort will move to Project 0708 in FY2004 and 2005.

The GMD Fire Control and Communications (FC/C) component enables control and operation of the GMDElement as a single, integrated system. The communications component consists of (1) GMD Communications Network (GCN) and (2) the In -Flight Interceptor Communication System (IFICS).

FY2002 Accomplishments:
 -Initiated studies for Test Bed In -Flight Interceptor Communication System (IFICS) Data Terminal (IDT) for Mid -Pacific, Vandenberg Air Force Base (VAFB), and Kodiak.
 -Initiated acquisition of IDTs for Shemya and Ft. Greely.
 -Initiated External System Interface (ESI) acquisition for AEGIS.
 -Initiated acquisition of GMD Fire Control and Communications Node equipment.
 -Initiated acquisition of Test Exerciser.
 -Initiated acquisition of GMD Communications Network (GCN), communication equipment, and network for CONUS Ring and other Test Bed sites.
 -Initiated acquisition of GMD Fire Control and Communications Remote Work Stations.

FY2003 Planned Accomplishments:
 -Completes IFICS fabrication.
 -Completes Test Exerciser.
 -Continues acquisition of IDTs for Shemya and Ft. Greely.
 -Continues External System Interface (ESI) hardware procurement for AEGIS.
 -Continues acquisition of GCN communication equipment and network for CONUS Ring and other Test Bed sites.
 -Continues acquisition of GMD Fire Control and Communications Remote Work Stations.
 -Continues acquisition of GMD Fire Control and Communications Node equipment.
 -Initiates acquisition of relocatable Test Bed IDT.

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	FY2002	FY2003	FY2004	FY2005
Element Engineering and Integration	47812	42077	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION.

--Note: This effort will move to Project 0708 in FY 2004 and 2005.

GMDElement Engineering provides engineering and analysis support for building and integration of the components of the 2004 Test Bed. Defines element -level capabilities, test requirements and objectives, and develops element -level assessments. Provides engineering, integration, and operations planning supporting an initial defensive operational capability. Continues the integration of component/element systems and sustains the planning effort for future deployment options. Continues to complement the BMDSS Systems Engineering capability by providing detailed insight and analysis into component technical and design -specific issues.

FY2002 Accomplishment s:

- Initiated Test Bed planning, design, and scheduling.
- Initiated planning for Test Bed sub -system checkout (SSCO) and system integration and checkout (SICO).
- Initiated acquisition of Embedded Test Node hardware.

FY2003 Planned Accomplishments:

- Continue Test Bed planning, design, and scheduling.
- Continue planning for Test Bed sub -system checkout (SSCO) and system integration and checkout (SICO) at Fort Greely.
- Conduct Reagan Test Site SSCO.
- Continue acquisition of Embedded Test Node hardware .

	FY2002	FY2003	FY2004	FY2005
Element Test & Evaluation (T&E)	17500	17635	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION.

--Note: This effort will move to Project 0708 in FY 2004 and 2005.

GMD Test and Evaluation provides critical risk reduction and measurement of system performance for all GMDElement components. It consists of a comprehensive infrastructure of ground -test facilities, ranges, sensors and instrumentation resources. This infrastructure allows the element engineer to successfully model and simulate test results into projections of future system performance.

The Combined Test Force, under a single unified organization, integrates developmental and operational test planning, share test resources, collects and assesses test data, collectively resolves test issues, and minimizes the duplication of test resources and the time required to execute required testing.

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FY2002 Accomplishments:

- Initiated systems/element test planning, design, and scheduling.
- Initiated planning for sub -system checkout (SSCO), system integration and checkout (SICO), and Systems Test Readiness Review (STRR).
- Initiated acquisition of launch support and range safety equipment for Kodiak.

FY2003 Planned Accomplishments:

- Continue systems/element test planning, design, and scheduling.
- Conducts Test Bed Integrated Ground Test.
- Continues planning for sub -system checkout (SSCO), system integration and checkout (SICO), and Systems Test Readiness Review (STRR).
- Initiates acquisition of Mission Control Centers (flight and ground).

	FY2002	FY2003	FY2004	FY2005
RDT&E Test Bed Construction	281321	136658	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION.

--Note: This effort will move to Project 0708 in FY2004.

This GMD RDT&E construction request is further justified in the accompanying DD -1391 Exhibits, RDT&E Construction Data, Missile Defense System Test Bed Facilities, Phase III (Project Number MDA -504) and Missile Defense System Test Bed -Extended Test Range Facilities Phase III (Project Number DMA -506). Project Number MDA 506 was initially authorized in FY2002 as the Missile Defense System Test Bed -Kodiak Facilities. The BMD St range program has evolved to include other locations and this project title has been changed to "Missile Defense System Test Bed -Extended Test Range Facilities" to reflect this development. The 1391s have been updated to reflect the latest construction costs. RDT&E funding initially allocated to planning and design efforts have been redistributed to the construction efforts.

FY2002 Accomplishments:

- Awarded construction contract.
- Completed Ft. Greely site preparation and drilling of two wells.
- Completed Ft. Greely perimeter fence.
- Completed drilling and rering of holes for 6 silos; completed excavation of 6 silos at Ft. Greely.
- Initiated construction on major facilities (readiness & control station, entry control, missile assembly building, utility & water buildings, IDT, and interceptor storage igloo) at Ft. Greely.
- Initiated construction on site access, interior site roads and drainage system at Ft. Greely.
- Initiated construction on facilities [IDT, Defense Satellite Communications System (DSCS), and test support facilities] at Eareckson Air Station (Shemya).
- Initiated upgrade to power plant facilities at Eareckson Air Station (Shemya).

FY2003 Planned Activities:

- Complete construction on major facilities (readiness & control station, entry control, missile assembly building, IDT, utility and water buildings and interceptor storage igloo).
- Initiate and complete construction on minor facilities including, EKV fuel storage buildings and security positions.
- Initiate and complete construction on Electronic Security System at Ft. Greely.

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- Continue construction of site access and interior site roads. Continue construction of the drainage system.
- Complete preparation of facilities for equipment installation at Ft. Greely.
- Continue construction of Eareckson Air Station (Shemya) facilities.
- Initiate COBRADANE facility modification.

	FY2002	FY2003	FY2004	FY2005
Community Impacts	15800	0	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION.

--Note: This effort will move to Project 0708 in FY2004.

FY2002 Accomplishments:

- Provided funding for mitigating community impacts. Efforts included an additional fire station, off post landfill, school assistance, and a communications/TV tower.

	FY2002	FY2003	FY2004	FY2005
Site Activation	54285	25302	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION. Note: This effort will move to Project 0708 in FY2004.

Note: This effort provides a broad range of site design and layout, facility requirements, and environmental management activities.

FY2002 Accomplishments:

- Initiated site layout and facility requirements definition for Test Bed infrastructure.
- Initiated Environmental, Safety and Health (ESH) documentation and compliance, NEPA Analyses.

FY2003 Planned Accomplishments:

- Continue to develop and verify site layout and facility requirements definition for Test Bed infrastructure.
- Continue Environmental, Safety and Health (ESH) documentation and compliance, NEPA Analyses.
- Facility acceptance and equipment installation coordination.

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C. Other Program Funding Summary										
	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0604861C Theater High -Altitude Area Defense System -TMD -EMD	818632	888323	0	0	0	0	0	0		
PE0604865C Patriot PAC -3 Theater Missile Defense Acquisition -EMD	130630	176155	0	0	0	0	0	0		
PE0604867C Navy Area Theater Missile Defense -EMD	96121	0	0	0	0	0	0	0		
PE0605502C Small Business Innovative Research -MDA	145102	0	0	0	0	0	0	0		
PE0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE06 03869C Meads Concepts -Dem/Val	0	114781	0	0	0	0	0	0		
PE0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603883C Ballistic Missile Defense Boost Defense Segment	583463	718036	626264	653612	755163	665772	477109	354346		
PE0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		

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D. Acquisition Strategy

GMD 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 GMD part of the BMDSTest Bed NLT 4th Quarter FY 2004 as an early BMDSTest Bed and deliver capability block up grades 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 expanding operational possibilities. The development approach has been enhanced to include (1) adding test infrastructure and improving test management to allow more operationally challenging representative flight tests and providing for increased testing against more challenging targets, and (2) increasing the fidelity of the project simulations.

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MDA Exhibit R -3RDT&E Project Cost Analysis	Date February 2003
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I. Product Development Cost (\$in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Ground-Based Interceptor (GBI)												
	SS/CPAF	Boeing/Various	158889	137027	2Q	0		0		CONT.	295916	CONT.
Cobra Dane Upgrade												
	SS/CPAF	Boeing/Various	11600	47500	1/2Q	0		0		CONT.	59100	CONT.
GMD Fire Control & Comms												
	SS/CPAF	Boeing/Various	51190	45689	1/2Q	0		0		CONT.	96879	CONT.
Element Engineering and Integration												
	SS/CPAF	Boeing/Various	47812	42077	2Q	0		0		CONT.	89889	CONT.
Element Test & Evaluation (T&E)												
	SS/CPAF	Boeing/Various	17500	17635	2Q	0		0		CONT.	35135	CONT.
Subtotal Product Development			286991	289928		0		0			576919	

Remarks

The Prime Contractor has the responsibility to balance resources across the GMD program and allocate funding according to program progress. This may require the Prime Contractor to reallocate funding, which would change the estimates provided in this R-3 document.

II. Support Costs Cost (\$in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
RDT&E Test Bed Construction												
Facility Construction	MIPR	COE/AK	2278521	122758	2Q	0		0		CONT.	2401279	CONT.
Kodiak Construction	MIPR	COE/AK	2800	13900	2Q	0		0		CONT.	16700	CONT.
Community Impacts												
	C/CPAF	Various/AK	15800	0		0		0		CONT.	15800	CONT.

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MDA Exhibit R -3 RDT&E Project Cost Analysis										Date February 2003		
APPROPRIATION/BUDGET ACTIVITY					R-1 NOMENCLATURE							
4. Advanced Component Development and Prototypes (ACD&P)					0603882C Ballistic Missile Defense Midcourse Defense Segment							
Site Activation												
	SS/CPFF	Boeing/AK	54285	25302	1/2Q	0		0		CONT.	79587	CONT.
Subtotal Support Costs			2351406	161960		0		0			2513366	
Remarks												
The Prime Contractor has the responsibility to balance resources across the GMD program and allocate funding according to program progress. This may require the Prime Contractor to reallocate funding, which would change the estimates provided in this R -3 document.												
III. Test and Evaluation Cost (\$ in Thousands)												
	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Cost Categories:												
Subtotal Test and Evaluation												
Remarks												
IV. Management Services Cost (\$ in Thousands)												
	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Cost Categories:												
Subtotal Management Services												
Remarks												
Project Total Cost			2638397	451888		0		0			3090285	
Remarks												
The Prime Contractor has the responsibility to balance resources across the GMD program and allocate funding according to program progress. This may require the Prime Contractor to reallocate funding, which would change the estimates provided in this R -3 document.												

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MDAExhibitR -4AScheduleDetail						Date February2003		
APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)				R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment				
ScheduleProfile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
Milestones								
DecisionPoints(alsosee3012)	3Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q				
TestBed								
Beg inInstallingInterceptors			3Q					
COBRADANEUpgrades	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q				
CompletionofInitialTestBedCapability			4Q					
Drill6siloholes -Greely	4Q	1Q-4Q						
GBIComponentsI&CO			3Q					
GCN -CONUSRingandTestBed sites	1Q-4Q	1Q-4Q	1Q-2Q					
GMDFireControl&CommsNode -Greely			1Q-4Q					
GMDFireCtrl&CommNode -JNIC/CMOC	1Q-4Q	1Q-4Q	1Q-2Q					
IFICS -Eareckson,AirStation,AK	1Q-4Q	1Q-4Q	1Q					
IFICS -Greely	1Q-4Q	1Q-4Q	1Q					
InitiateT estBedTesting				1Q				
Sea -BasedTestXBR(SBX)Planning&Acquisition		1Q-4Q	1Q-4Q					
TestBedUpgradeDecisionPoint			3Q-4Q	1Q-3Q				
EarlyWarningRadars(EWR)								
BealeUpgrades(UEWR)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q				

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
0708 Ground-Based Midcourse Defense (GMD) Test Bed Block 2004	0	0	1205431	867509	0	0	0	0
RDT & E Articles Qty	0	0	29	24	0	0	0	0

A. Mission Description and Budget Item Justification

This Budget Project was previously captured in Project 3011 in FY 2002 and 2003.

The Ground-based Midcourse Defense (GMD) System Element of the Midcourse Defense Segment (MDS) consists of a series of block development efforts supporting the midcourse phase of the BMDs. The Block 2004 (Project 0708) consists of the early development and construction of the initial GMD parts of the BMDs Test Bed (initiated under Project 3011) and provides for fielding a ground-based midcourse capability beginning in FY 2004. Block 2006 (Project 0808) consists of the development of capabilities to detect, track, intercept, and defeat ballistic missile threats to the U.S. during the midcourse phase of flight as well as GMD improvements to the BMDs Test Bed (initiated under Project 3012, GMD Development and Test Bed Upgrades). GMD development efforts continue with Block 2008 (Project 0908) and consist of sustaining engineering and spiral upgrades to the GMD components of the Block 2004/06 BMDs Test Bed. These efforts will include block upgrades to GMD components.

Project 0708 and Project 3011, Block 2004 Test Bed, while providing an initial defensive operational capability will also provide a Ballistic Missile Defense System (BMDS) Test Bed capability to address realism test and evaluation efforts. This multi-part Test Bed will use initial developmental hardware and software assets to validate the Ground-based Midcourse Defense (GMD) operational concept and to provide increased realism for GMD testing. The initial GMD parts of the BMDS Test Bed will provide:

- 1) More realistic test and evaluation through geographically dispersed assets and an operationally representative environment to checkout component hardware and software integration.
- 2) Distributed, integrated ground testing.
- 3) GMD Fire Control and Communication to support the Test Bed.
- 4) Sensor assets including the upgraded COBRADAN radar in Shemya and development of a Sea-Based Test X-Band Radar (SBX). Also includes exploring the acquisition of additional sensors such as an X-band radar.
- 5) Validation of construction, transportation, site activation, and logistics concepts supporting future deployment options.
- 6) Leveraging of ongoing basic development program activities in Projects 3012 and 0808.
- 7) Incorporation of Aegis Weapon System (AWS) radar to support GMD Integrated Flight Test Program as soon as practicable.
- 8) Full spectrum of testing to demonstrate system performance.
- 9) Common test infrastructure (for ground and sea-based elements) that is expandable to boost and terminal segments.

As directed by the President, starting in FY 2004, the BMD Test Bed will include an initial defensive operations capability (IDO). This IDO capability will be expanded by:

- 1) Construction of a 2nd missile field at Fort Greely.
- 2) Acquisition of additional Interceptors (Boosters and EKVs).
- 3) Refurbishment of existing silos and installation of launch support components at VAFB.
- 4) Acquisition of an In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) with Communications Node Equipment (CNE) extensions at a NECONUS location.
- 5) Acquisition of a UEWR at Fylingdales, U.K.

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-INOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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B. Accomplishments/Planned Program	FY2002	FY2003	FY2004	FY2005
Ground-Based Interceptor (GBI)	0	0	224202	5653
RDT&E Articles (Quantity)	0	0	15	0

DISCUSSION. The Ground-Based Interceptor consists of an Exo-atmospheric Kill Vehicle (EKV) and a Boost Vehicle.

FY2002 Accomplishments: (Funded in Project 3011)

- Initiated acquisition of five (5) interceptors with spare boost vehicles for Ft. Greely.
- Initiated acquisition of six (6) common silos, launch site components for Ft. Greely.
- Initiated acquisition of command launch equipment (CLE) and other support equipment for Ft. Greely.

FY2003 Planned Accomplishments: (Funded in Project 3011)

- Continues acquisition of five (5) interceptors with spare boost vehicles for Ft. Greely.
- Continues acquisition of six (6) common silos, launch site components for Ft. Greely.
- Continues acquisition of command launch equipment and other support equipment for Ft. Greely.

FY2004 Planned Accomplishments:

RDT&E Test Articles: Acquisition of five (5) EKV and ten (10) boost vehicles, and associated launch support equipment was initiated in FY2002 for delivery in FY2004.

- Completes acquisition of five (5) interceptors with spare boost vehicles for Ft. Greely.
- Completes acquisition of six (6) common silos, launch site components for Ft. Greely.
- Completes acquisition of command launch equipment and other support equipment for Ft. Greely.
- Initiates components site installation and checkout.

FY2005 Planned Accomplishments:

- Continues silo/interceptor/launch systems ground testing, system level simulation, and verification, validation, and accreditation activities.

	FY2002	FY2003	FY2004	FY2005
Cobra Dane Upgrade	0	0	34800	0
RDT&E Articles (Quantity)	0	0	1	0

DISCUSSION. Cobra Dane is an existing radar used to detect and track ballistic missile launches. This project upgrades both hardware and software to improve overall performance.

FY2002 Accomplishments: (Funded in Project 3011)

- Initiated hardware design.
- Initiated hardware build.
- Initiated facility modification design.

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-INOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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FY2003 Planned Accomplishments: (Funded in Project 3011)

- Initiate hardware installation.
- Complete software build.
- Complete facility modification.

FY2004 Planned Accomplishments:

RDT&E Test Articles: Acquisition of hardware and software upgrades to the Cobra Dane Radar was initiated in FY2002 with delivery in FY2004.

- Complete software build.
- Complete installation and initial checkout.
- Complete final checkout (Initial COBRADANE upgrade complete).

	FY2002	FY2003	FY2004	FY2005
GMD Fire Control & Communications	0	0	29063	7654
RDT&E Articles (Quantity)	0	0	7	0

DISCUSSION. The GMD Fire Control and Communications (FC/C) component enables control and operation of the GMDElement as a single, integrated system. The communications component consists of (1) GMD Communications Network (GCN) and (2) the In-Flight Interceptor Communication System (IFICS).

FY2002 Accomplishments: (Funded in Project 3011)

- Initiated studies for Test Bed In-Flight Interceptor Communication System (IFICS) Data Terminal (IDT) for Mid-Pacific, VAFB, and Kodiak.
- Initiated acquisition of IDTs for Shemya and Ft. Greely.
- Initiated External System Interface (ESI) acquisition for AEGIS.
- Initiated acquisition of GMD Fire Control and Communications Node equipment.
- Initiated acquisition of Test Exerciser.
- Initiated acquisition of GMD Communications Network (GCN), communication equipment, and network for CONUS Ring and other Test Bed sites.
- Initiated acquisition of GMD Fire Control and Communications Remote Work Stations.

FY2003 Planned Accomplishments: (Funded in Project 3011)

- Complete IFICS fabrication.
- Complete Test Exerciser.
- Continue acquisition of IDTs for Shemya and Ft. Greely.
- Continue External System Interface (ESI) hardware procurement for AEGIS.
- Continue acquisition of GCN communication equipment and network for CONUS Ring and other Test Bed sites.
- Continue acquisition of GMD Fire Control and Communications Remote Work Stations.
- Continue acquisition of GMD Fire Control and Communications Node equipment.
- Initiate acquisition of relocatable Test Bed IDT.

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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FY2004 Planned Accomplishments:

RDT&E Test Articles: Acquisition of IFICS Data Terminals (IDT), one (1) for Shemya and one (1) for Greely, was initiated in FY2002 for delivery in FY2004. Acquisition for a third IFICS Data Terminal (IDT) was initiated for either Mid-Pacific, Vandenberg AFB, or Kodiak in FY2003 for delivery in FY2004. An additional IDT is acquired for the SBX and is included in that accomplishment narrative. Acquisition of GMD Fire Control and Communications Nodes for Ft. Greely and Joint National Integration Center (JNIC) with remote operator workstations at Cheyenne Mountain Operations Center (CMOC) was initiated in FY2002 for delivery in FY2004. Acquisition of an Aegis External System Interface was initiated in FY2003 for delivery in FY2004.

- Complete installation and checkout at Ft. Greely.
- Complete acquisition of IDTs for Shemya and Ft. Greely.
- Complete initial IDT installation and checkout, Shemya and Ft. Greely.
- Complete External System Interface (ESI) acquisition, installation, and checkout for AEGIS.
- Complete acquisition of GCN communication equipment and network for CONUS Ring and other Test Bed sites.
- Complete acquisition of GMD Fire Control and Communications Remote Work Stations.
- Complete acquisition of GMD Fire Control and Communications Node equipment.
- Continue acquisition of relocatable Test Bed IDT.

FY2005 Planned Accomplishments:

- Complete relocatable Test Bed IDT.

	FY2002	FY2003	FY2004	FY2005
Element Engineering and Integration	0	0	42901	13351
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION. GMDElement Engineering provides engineering and analysis support for building and integration of the components of the 2004 Test Bed. Define element-level capabilities, test requirements and objectives, and develop element-level assessments. Provide engineering, integration, and operations planning supporting an initial defensive operational capability. Continue the integration of component/element systems and sustain the planning effort for future deployment options. Continue to complement the BMDSS Systems Engineering capability by providing detailed insight and analysis into component technical and design-specific issues.

FY2002 Accomplishments: (Funded in Project 3011)

- Initiated Test Bed planning, design, and scheduling.
- Initiated planning for Test Bed subsystem checkout (SSCO) and system integration and checkout (SICO).
- Initiated acquisition of Embedded Test Node hardware.

FY2003 Planned Accomplishments: (Funded in Project 3011)

- Continue Test Bed planning, design, and scheduling.
- Continue planning for Test Bed subsystem checkout (SSCO) and system integration and checkout (SICO) at Fort Greely.
- Conduct Reagan Test Site SSCO.
- Continue acquisition of Embedded Test Node hardware.

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FY2004 Planned Accomplishments:

- Conduct subsystem checkout (SSCO) assessments for Shemya (Cobra Dane), Boulder, Buckley, Vandenberg Air Force Base (VAFB), ESI (AEGIS Weapon System Radar), Beale UESR, Ft. Greely Interceptor site, and Test IDT capability.
- Conduct Test Bed systems integration and checkouts (SICO).
- Complete acquisition and installation of Embedded Test Node hardware.

FY2005 Planned Accomplishments:

- Complete system integration test and checkout.

	FY2002	FY2003	FY2004	FY2005
Element Test & Evaluation (T&E)	0	0	17136	3951
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION. GMD Test and Evaluation provides critical risk reduction and measurement of system performance for all GMDElement components. It consists of a comprehensive infrastructure of ground-test facilities, ranges, sensors and instrumentation resources. This infrastructure allows the element engineers to successfully model and simulate test results into projections of future system performance. The Combined Test Force, under a single unified organization, integrates developmental and operational test planning, shares test resources, collects and assesses test data, collectively resolves test issues, and minimizes the duplication of test resources and the time required to execute required testing.

FY2002 Accomplishments: (Funded in Project 3011)

- Initiated systems/element test planning, design, and scheduling.
- Initiated planning for subsystem checkout (SSCO), system integration and checkout (SICO), and Systems Test Readiness Review (STRR).
- Initiated acquisition of launch support and range safety equipment for Kodiak.

FY2003 Planned Accomplishments: (Funded in Project 3011)

- Continue systems/element test planning, design, and scheduling.
- Conduct Test Bed Integrated Ground Test.
- Continue planning for subsystem checkout (SSCO), system integration and checkout (SICO), and Systems Test Readiness Review (STRR).
- Initiate acquisition of Mission Control Centers (flight and ground).

FY2004 Planned Accomplishments:

- Support SSCO assessments for Shemya (Cobra Dane), Boulder, Buckley, Vandenberg Air Force Base (VAFB), ESI (AEGIS Weapon System Radar), Beale UESR, Ft. Greely Interceptor site, and Test Bed IDT capability.
- Conduct Test Bed Integrated Ground Test.
- Support systems checkouts (SCO) and test readiness reviews.
- Complete acquisition of Mission Control Centers (flight and ground).

FY2005 Planned Accomplishments:

- Complete Systems Test Readiness Review documentation.

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	FY2002	FY2003	FY2004	FY2005
RDT&E Test Bed Construction	0	0	38135	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION. This GMD RDT&E Construction request is further justified in the accompanying DD -1391 Exhibits, RDT&E Construction Data. Missile Defense System Test Bed Facilities, Phase III (Project Number MDA -504) and Missile Defense System Test Bed -Extended Test Range Facilities Phase III (Project Number DMA -506). Project Number MDA 506 was initially authorized in FY 2002 as the Missile Defense System Test Bed -Kodiak Facilities. The BMD Stetson program has evolved to include other locations and this project title has been changed to "Missile Defense System Test Bed -Extended Test Range Facilities" to reflect this development. The 1391s have been updated to reflect the latest construction costs. RDT&E funding initially allocated to planning and design effort has been redistributed to the construction efforts.

FY2002 Accomplishments: (Funded in Project 3011)

- Awarded construction contract.
- Completed Ft. Greely site preparation and drilling of two wells.
- Completed Ft. Greely perimeter fence.
- Completed drilling outerring of holes for 6 silos; completed excavation of 6 silos at Ft. Greely.
- Initiated construction on major facilities (readiness & control station, entry control, missile assembly building, utility & water buildings, IDT, and interceptor storage igloo) at Ft. Greely.
- Initiated construction on site access and interior site roads and drainage system at Ft. Greely.
- Initiated construction on facilities [IDT, Defense Satellite Communications System (DSCS), and support facilities] at Eareckson Air Station (Shemya).
- Initiated upgrade power plant facilities at Eareckson Air Station (Shemya).

FY2003 Planned Activities: (Funded in Project 3011)

- Complete construction on major facilities (readiness & control station, entry control, missile assembly building, IDT, utility and water buildings and interceptor storage igloo).
- Initiate and complete construction on minor facilities including, EKV fuel storage buildings and security positions.
- Initiate and complete construction on Electronic Security System at Ft. Greely.
- Continue construction of site access and interior site roads. Continue construction of the drainage system.
- Complete preparation of facilities for equipment installation at Ft. Greely.
- Continue construction of Eareckson Air Station (Shemya) facilities.
- Initiate COBRADANE facility modification.

FY2004 Planned Activities:

- Complete equipment installation for missile field, IDTs and DSCS at Ft. Greely.
- Complete construction on site access and interior site roads and drainage system.
- Complete construction on facilities (IDT, COBRADANE, DSCS, and Test Support Facilities) at Eareckson Air Station (Shemya).

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment		
	FY2002	FY2003	FY2004	FY2005
Community Impacts	0	0	6585	0
RDT&E Articles (Quantity)	0	0	0	0
<p>DISCUSSION.</p> <p>FY2002 Accomplishments: (Funded in Project 3011) -Provided funding for mitigating community impacts. Efforts included an additional fire station, off post landfill, school assistance, and a communications/TV tower.</p> <p>FY2004 Planned Accomplishments: -Completes community impact mitigation efforts including education programs, and social service grants.</p>				
	FY2002	FY2003	FY2004	FY2005
Sea-Based X-Band Radar (SBX)	0	0	370000	168800
RDT&E Articles (Quantity)	0	0	0	2
<p>DISCUSSION.</p> <p>Note: This effort was initiated under Project 3012 in FY2002 and 2003. The SBX development was initiated in FY2002. This acquisition is necessary to ensure that a Test XBR is ready to be integrated into the Ballistic Missile Defense System Test Bed in the fourth quarter of FY2005.</p> <p>The Sea-Based Test X-Band Radar (SBX) is a Midcourse Defense sensor that will support Integrated Flight Tests and provides the capability of exercising all GMD sensor functions (weapon task plan, in-flight target update, target object map and kill assessment). The SBX will include an IFICSD Data Terminal. The SBX will be a containerized, relocatable, phased array (half populated) radar. The ability of the SBX to be relocated enables full use of extended test range capabilities for all land and air target launches, provides more realistic siting, and facilitates operationally realistic testing. The SBX will be mounted on a modified, sea-going, semi-submersible platform similar to the oil drilling platforms currently in use.</p> <p>FY2002 Accomplishments: (Funded in Project 3012) -Initiated design and engineering planning for radar, platform, and supporting facilities. -Initiates acquisition of the sea-based platform. -Initiated planning for necessary home porting operations for the sea-based platform.</p> <p>FY2003 Planned Accomplishments: (Funded in Project 3012) -Initiated acquisition of long lead items associated with the radar. -Initiates acquisition of main radar structure. -Initiates acquisition of radar electronic components. -Initiates construction of operations and support structures and facilities for platform. -Initiates acquisition of operations and support equipment for platform.</p>				

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FY 2004 Planned Accomplishments:
 -Complete fabrication of main radar structure.
 -Complete installation of radar structure.
 -Complete acquisition and initiate installation of radar electronic components.
 -Complete fabrication of operations and support structures and facilities for platform.
 -Continue acquisition of operations and support equipment for platform.
 -Initiate installation of radar electronic components.
 -Initiate home port for the sea-based platform.

FY 2005 Planned Accomplishments:

RDT&E Test Articles: Acquisition of one (1) Sea-Based Test X-Band Radar (SBX) was initiated in FY 2002 for delivery in FY 2005. Acquisition of one (1) IFICS Data Terminal (IDT), fixed to the SBX platform, was initiated in FY 2002 for delivery in FY 2005.

-Complete installation of radar electronic components.
 -Complete acquisition of operations and support equipment for platform.
 -Complete integration and checkout of Sea-Based X-Band Radar.
 -Conduct home-porting operations for the sea-based platform.
 -Complete radar array (half populated).

	FY2002	FY2003	FY2004	FY2005
Site Activation	0	0	13609	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION. This effort provides a broad range of site design and layout, facility requirements, and environmental management activities.

FY 2002 Accomplishments: (Funded in Project 3011)

-Initiated site layout and facility requirements definition for Test Bed infrastructure.
 -Initiated Environmental, Safety and Health (ESH) documentation and compliance, NEPA Analyses.

FY 2003 Planned Accomplishments: (Funded in Project 3011)

-Continue to develop and verify site layout and facility requirements definition for Test Bed infrastructure.
 -Continue Environmental, Safety and Health (ESH) documentation and compliance, NEPA Analyses.
 -Facility acceptance and equipment installation coordination.

FY 2004 Planned Accomplishments:

-Complete development and verification of site layout and facility requirements definition for Test Bed infrastructure.
 -Continue Environmental, Safety and Health (ESH) documentation and compliance, NEPA Analyses.
 -Facility acceptance and equipment installation coordination.

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	FY2002	FY2003	FY2004	FY2005
Beale Early Warning Radar Upgrade			32000	20100
RDT&E Articles (Quantity)			1	0

DISCUSSION.

Note: This effort was initiated under Project 3012 in FY2002 and 2003.

The Beale Early Warning Radar (EWR) is a large, fixed, phased -arrays surveillance radar used to detect, track, and count individual targets early in their trajectory. The planned Beale upgrades provide the capability of not only detecting, but providing precise tracking early enough to significantly expand the battlespace for the ground based interceptors into the earliest stages of flight. The Beale upgrades include both hardware and software enhancements to improve overall performance. This upgrade was initiated in Project 3012 in FY2002 and 2003.

FY2002 Accomplishments: (Funded in Project 3012)

- Continued flight and ground test support.
- Continued development and deployment of UEWR software builds.
- Initiated acquisition of Beale receiver -exciter and processors.
- Initiated Beale facility design.

FY2003 Planned Accomplishments: (Funded in Project 3012)

- Continues flight and ground test support.
- Completes prototype string hardware.
- Completes Beale facility design.
- Completes Beale construction.
- Completes acquisition of Beale receiver -exciter and processors.
- Supports a Radar Certification Flight.

FY2004 Planned Accomplishments:

RDT&E Test Articles: Acquisition of various upgrades to the Beale EWR was initiated in FY2002 for delivery in FY2004.

- Continues Flight and Ground Test support.
- Continues development and deployment of UEWR Software Builds.
- Completes Beale Integration and Test.
- Completes Beale Sub -system Checkout.
- Completes delivery of Beale Upgrade initial capability.
- Supports Radar Certification Flights.
- Initiate ITWAA integration and certification.

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FY2005 Planned Accomplishments:
 -Continues Flight and Ground Test support.
 -Continues development and deployment of UEWR Software Builds.
 -Supports Radar Certification Flights.
 -Completes ITWAA integration and certification.

	FY2002	FY2003	FY2004	FY2005
Initial Defensive Operations Capability (Ground Based Interceptors (GBI))	0	0	215263	426737
RDT&E Articles (Quantity)	0	0	5	20

DISCUSSION: The Ground Based Interceptor consists of an Exo-atmospheric Kill Vehicle (EKV) and a Booster Vehicle. These interceptors represent an enhancement to the basic Block 2004 of five (5) Ground Based Interceptor (GBI) Test Bed capability by adding: Eleven (11) GBI at Fort Greely by FY2005, and four (4) GBI at Vandenberg AFB (VAFB) by FY2004. This effort will provide the United States with an enhanced Initial Defensive Operations capability (IDO) capability.

FY2004 Planned Accomplishments:
 -Acquire and install five EKV's (4 EKV's for VAFB and 1 for Fort Greely; boosters previously acquired).
 -Initiate acquisition of ten (10) EKV's for Fort Greely.
 -Initiate acquisition of ten (10) Boosters for Fort Greely.
 -Initiate acquisition of common silos for Fort Greely.
 -Refurbish three (3) silos at VAFB.

RDT&E Articles: Acquired 5 EKV's initiated in FY2004 for delivery in FY2004.

FY2005 Planned Accomplishments:
 -Complete acquisition and installation of 10 Boosters for Fort Greely.
 -Complete acquisition and installation of 10 EKV's for Fort Greely.
 -Complete acquisition and installation of common silos for Fort Greely.

RDT&E Articles: Acquired 10 EKV's and 10 Boosters initiated in FY2004 for delivery in FY2005.

	FY2002	FY2003	FY2004	FY2005
Initial Defensive Operations Capability (UEWR and IDT)			65300	42300
RDT&E Articles (Quantity)			0	2

DISCUSSION: The UEWR capabilities provide increased early warning capability for potential threat objects launched from north and east of CONUS. These processor upgrades, along with the associated GMDC Communications Network (GCN) connectivity, are planned for full implementation at the Northeast site by FY2005. The IDT provides the capability for midcourse communications with eastbound interceptors from existing Test Bed assets. The IDT shall be positioned on site in accordance with a siting analysis to provide favorable communications with launched interceptors.

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FY2004 Planned Accomplishments:

- Initiate acquisition of UEWR hardware.
- Initiate installation of UEWR hardware.
- Begin installation of UEWR software.
- Initiate IT/WAA integration and certification for the UEWR.
- Initiate acquisition of IDT.

RDT&E Articles: Acquisition of one (1) UEWR was initiated in FY2004 for delivery in FY2005. Acquisition of one (1) IDT was initiated in FY2004 for delivery in FY2005.

FY2005 Planned Accomplishments:

- Complete acquisition of UEWR hardware.
- Complete installation of UEWR hardware.
- Complete installation of UEWR software.
- Complete Integrated Tactical Warning and Attack Assessment and certification for the UEWR.
- Complete acquisition of IDT.
- Complete installation of IDT.

	FY2002	FY2003	FY2004	FY2005
Initial Defensive Operations Capability (RDT&E Construction)	0	0	116437	178963
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION. This GMD RDT&E Construction request is further justified in the accompanying DD -1391 Exhibits, RDT&E Construction Data. The 1391s have been updated to reflect the latest construction costs for the enhanced Initial Defensive Operations Capability.

FY2004 Planned Accomplishments:

- Initiate construction of 10 common silos and supporting facilities at Ft. Greely.
- Initiate and complete site facility designs for IDT [NER Region, CONUS] and UEWR [NET Tier].
- Initiate facilities construction for IDT [NER Region, CONUS] and UEWR [NET Tier].

FY2005 Planned Accomplishments:

- Complete construction of 10 common silos and supporting facilities at Ft. Greely.
- Complete facilities construction for IDT [NER Region, CONUS] and UEWR [NET Tier].

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MDA Exhibit R -2 ARDT&E Project Justification							Date February 2003			
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)					R-INOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment					
C. Other Program Funding Summary										
	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603869C Meads Concepts -Dem/Val	0	114781	0	0	0	0	0	0		
PE0603175CBallisticMissileDefense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE0603879CAdvancedConcepts, EvaluationsandSystems	0	0	151696	216778	166308	193949	241947	234484		
PE0603880CBallisticMissileDefense SystemSegment	790535	1046652	0	0	0	0	0	0		
PE0603881CBallisticMissileDefense TerminalDefenseSegment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603884CBallisticMissileDefense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0603886CBallisticMissileDefense SystemInterceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603890CBallisticMissileDefense SystemEngineeringandIntegration	0	0	483996	522458	604445	628594	703055	706501		
PE0603888CBallisticMissileDefenseTest andTargets	0	0	611522	711181	661416	643302	639839	672396		
PE0603889CBallisticMissileDefense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0604861CTheaterHigh-AltitudeArea DefenseSystem -TMD -EMD	818632	888323	0	0	0	0	0	0		
PE0604865CPatriotPAC -3TheaterMissile DefenseAcquisition -EMD	130630	176155	0	0	0	0	0	0		
PE0604867CNavyAreaTheaterMissile Defense -EMD	96121	0	0	0	0	0	0	0		
PE0605502CsmallBusinessInnovative Research -MDA	145102	0	0	0	0	0	0	0		
PE0901585CPentagonReservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE0901598CManagementHeadquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE0603883CBallisticMissileDefenseBoost DefenseSegment	583463	718036	626264	653612	755163	665772	477109	354346		

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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D. Acquisition Strategy

GMD 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 GMD part of the BMDSTest Bed NLT 4th Quarter FY 2004 as an early BMDSTest Bed and deliver capability block up grades as early as practical. In addition, the President has directed that the Test Bed be enhanced with additional interceptors and two sensor upgrades. These enhancements will be folded into ongoing development and implementation of the core Test Bed, and take advantage of all development up to this time. 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. The development approach has been enhanced to include (1) adding test infrastructure and improving test management to allow more operationally challenging representative flight tests and providing for increased testing against more challenging targets, and (2) increasing the fidelity of the project simulations.

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MDA Exhibit R -3RDT&E Project Cost Analysis										Date February 2003		
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)					R-INOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment							
I. Product Development Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Ground-Based Interceptor (GBI)												
Ground-Based Interceptor (GBI)	SS/CPAF	Boeing/Various	0	0		224202	2Q	5653	2Q	CONT.	229855	CONT.
Cobra Dane Upgrade												
	SS/CPAF	Boeing/Various	0	0		34800	1/2Q	0		CONT.	34800	CONT.
GMD Fire Control & Comms												
GMD Fire Control & Comms	SS/CPAF	Boeing/Various	0	0		29063	1/2Q	7654	1/2Q	CONT.	36717	CONT.
Element Engineering and Integration												
	SS/CPAF	Boeing/Various	0	0		42901	2Q	13351	2Q	CONT.	56252	CONT.
Element Test & Evaluation (T&E)												
	SS/CPAF	Boeing/Various	0	0		17136	2Q	3951	2Q	CONT.	21087	CONT.
Sea-Based X -Band Radar (SBX)												
Sea-Based X -Band Radar (SBX)	SS/CPAF	Boeing/Various	0	0		370000	1/2Q	168800	1/2Q	CONT.	538800	CONT.
Beale Early Warning Radar Upgrade												
	SS/CPAF	Boeing/Various	0	0		32000	1/2Q	20100	1/2Q	CONT.	52100	CONT.
Initial Defensive Operations Capability (Ground -Based Interceptors (GBI))												
	SS/CPAF	Boeing/Various				215263	1Q	426737	1Q	CONT.	642000	CONT.
Initial Defensive Operations Capability (UEWR and IDT)												
	SS/CPAF	Boeing/Various	0	0		65300	1/2Q	42300	1/2Q	CONT.	107600	CONT.
Subtotal Product Development			0	0		1030665		688546			1719211	
Remarks												
The Prime Contractor has the responsibility to balance resources across the GMD program and allocate funding, which would change the estimates provided in this R-3 document. Funding according to program progress. This may require the Prime Contractor to reallocate												

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-INOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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II. Support Costs Cost (\$in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
RDT&E Test Bed Construction												
Facility Construction	MIPR	COE/AK	0	0		17345	2Q	0		CONT.	17345	CONT.
Kodiak Construction	MIPR	COE/AK	0	0		20790	2Q	0		CONT.	20790	CONT.
Community Impacts												
	C/CPAF	Various/AK	0	0		6585	2Q	0		CONT.	6585	CONT.
Site Activation												
Site Activation	SS/CPFF	Boeing/Various	0	0		13609	1/2Q	0		CONT.	13609	CONT.
Initial Defensive Operations Capability (RDT&E Construction)												
	MIPR	COE/AK/CA	0	0		116437	1Q	178963	1Q	CONT.	295400	CONT.
Subtotal Support Costs			0	0		174766		178963			353729	

Remarks

The Prime Contractor has the responsibility to balance resources across the GMD program and allocate funding according to program progress. This may require the Prime Contractor to reallocate funding, which would change the estimates provided in this R -3 document.

III. Test and Evaluation Cost (\$in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Test and Evaluation												

Remarks

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MDAExhibitR -3RDT&EProjectCostAnalysis	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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IV.ManagementServicesCost(\$inThousands)												
Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract	
CostCategories:												
SubtotalManagementServices												

Remarks

ProjectTotalCost			0	0		1205431		867509		2072940	
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Remarks

ThePrimeContracto rhas theresponsibilityto balanceresourcesacrosstheGMDprogramandallocatefundingaccordingtoprogramprogress.This mayrequirethePrimeContractortoreallocate funding,whichwouldchangetheestimatesprovidedinthisR -3document.

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MDAExhibitR -4ScheduleProfile	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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FiscalYear	2002				2003				2004				2005				2006				2007				2008				2009							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
EarlyWarningRadars(EWR)																																				
BealeUpgrades(UWR)																																				
InitialDefensiveOperationalCapability																																				
InstallGBIsfor2ndMissileField-Greely																																				
ConductMissileField2SiteActivation-Greely																																				
InstallUpgradestoNETierEWR																																				
Install#6GBI-Greely																																				
InstallGBIs-VAFB																																				
InstallINECONUSIDT																																				
RefurbishSilos-VAFB																																				

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MDAExhibitR -4AScheduleDetail						Date February2003		
APPROPRIATION/BUDGETACTIVITY 4.Advanced ComponentDevelopmentandPrototypes(ACD&P)				R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment				
ScheduleProfile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
Milestones								
DecisionPoints(alsosee3012)	3Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q				
TestBed								
BeginInstallingIn terceptors			3Q					
COBRADANEUpgrades	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q				
CompletionofInitialTestBedCapability			4Q					
Drill6siloholes -Greely	4Q	1Q						
GBIComponentsI&CO			3Q					
GCN -CONUSRingandTestBedsites	1Q-4Q	1Q-4Q	1Q-2Q					
GMDFireControl&CommsNode -Greely			1Q-4Q					
GMDFireCtrl&CommNode -JNIC/CMOC	1Q-4Q	1Q-4Q	1Q-2Q					
IFICS -Eareckson,AirStation,AK	1Q-4Q	1Q-4Q	1Q					
IFICS -Greely	1Q-4Q	1Q-4Q	1Q					
InitiateTestBedTesting				1Q				
Sea -BasedTestXBR(SBX)Planning&Acquisition	4Q	1Q-4Q	1Q-4Q	1Q-4Q				
TestBedUpgradeDecisionPoint			3Q-4Q	1Q-3Q				
EarlyWarningRadars(EWR)								
BealeUpgrades(UEWR)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q				
InitialDefensiveOperational Capability								
InstallGBIsfor2ndMissileField -Greely			4Q	1Q-4Q	1Q			
ConductMissileField2SiteActivation -Greely			1Q-4Q	1Q-4Q	1Q			
InstallUpgradestoNETierEWR			1Q-4Q	1Q-4Q				
Install#6GBI -Greely			1Q-4Q					
Ins tallGBIs -VAFB			1Q-4Q					
InstallNECONUSIDT			1Q-4Q	1Q-4Q				
RefurbishSilos -VAFB			1Q-4Q					

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
3012 Ground -Based Midcourse Defense (GMD) Development and Test Bed Upgrades	2437733	2108947	0	0	0	0	0	0
RDT&E Articles Qty	7	10	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Note: This Project has been restructured beginning in FY2004 to Project 0808. This restructure represents MDA's Block development and management framework for the BMDS.

The Ground -based Midcourse Defense (GMD) System Element of the Midcourse Defense Segment (MDS) consists of a series of block development efforts supporting the midcourse descent phase of the BMDS. The Block 2004 consists of the early development and construction of the initial GMD part of the BMDS Test Bed (initiated under Project 3011). Block 2006 (Project 0808) consists of the development of capabilities to detect, track, intercept, and defeat ballistic missile threats to the U.S. during the midcourse phase of flight as well as GMD improvements to the BMDS Test Bed (initiated under this Project (3012)). GMD development efforts continue with Block 2008 (Project 0908) and consist of sustaining engineering and spiral upgrades to the GMD components of the Block 2004/06 BMDS Test Bed. These efforts will include Preplanned Product Improvements (P3I) to GMD components.

Projects 3012 and 0808, Ground -based Midcourse Defense (GMD) Block 2006, provide hardware, planning, mission support and execution of the GMD test program. It also provides a broad range of development activities and technologies and components for the ground -based element of Ballistic Missile Defense System (BMDS). This development effort will mature key technologies in logical stages to allow for an initial capability, an enhanced and more robust BMDS Test Bed (using operationally representative hardware and software developed on hardware and software), and a continuing program to develop and demonstrate a wider range of technologies supporting a ground -based "Hit -to-Kill" capability. This project requires infrastructure support for the GMD program at Redstone Arsenal, Alabama.

The GMD Development program provides an integrated development and test program of more capable interceptors (both launch and kill vehicles), targets, sensors, and GMD Fire Control Communication systems and infrastructure.

-The Objective Boost Vehicle (OBV) will be the launch vehicle for the Exo -atmospheric Kill Vehicle (EKV). The OBV is in development with booster verification flight tests planned in FY2003. Until the initial OBV candidates have completed testing and are certified for use in the MDS flight test program, the Payload Launch Vehicle (P LV) has been used.

-The EKV "Hit -to-Kill" payload is designed to acquire, discriminate, track, and intercept targets in the midcourse phase of flight. The key components and technologies of the EKV include the acquisition and tracking sensors, the on -board maneuvering system, and the on -board vehicle C3 systems. Component development is on -going and is demonstrated as part of the block improvement process in the Integrated Flight Test program.

-The sensor development program is a mix of enhancement to existing radar assets and development of new radar capabilities. The program will continue the upgrades to the Early Warning Radar at Beale. Continues planning for potential upgrades to other Early Warning Radar (EWR) sites. The key elements of the upgrades are the software builds to improve the effectiveness of the radars. A broad range of X -Band Radar (XBR) technologies will continue in development. The Ground Based Radar Prototype (GBR -P) located at the Ronald Reagan Test Site (RTS), at Kwajalein, is being used as part of the Integrated Flight Test program. It serves as a demonstration platform for these evolving radar technologies.

-The GMD Fire Control and Communications component is an integrated communications network of nodes to enable the GMD element to function as an integrated system. This includes:
 1. Various communications links (e.g., CONUS ring, Alaska leased lines and Satellite Communications (SATCOM) to Shemya, Ft. Greely, and In -Flight Interceptor Communication System (IFICS) Data Terminals (IDTs).
 2. GMD Fire Control and Communications Nodes [Ft. Greely and Joint National Integration Center (JNIC) with remote operator workstations at Cheyenne Mountain Operations Center (CMOC)]
 3. In -Flight Interceptor Communications System Data Terminal (IDTs) at various locations.

Block development initiatives continue on these technologies and components meeting future block capability requirements. This effort will be developed to be consistent with the BMDS BMC/C2 architecture.

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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-The GMD Development programs support the requirements of the test program including Integrated Flight and Ground Tests. The GMD test program is designed to demonstrate a broad range of GMD component development efforts. These incremental capabilities include multiple launches against multiple threat targets as the block capabilities mature. These test components include targets, launch vehicles, EKV's, launch infrastructure, sensors, test range assets, and other mission support. Additionally, the test program will incorporate Aegis Weapon System (AWS) radar to support GMD integrated flight test program as soon as practicable.

-Planning continues to provide a capability to respond to a future deployment order in the shortest time possible. This includes sites surveys and activation planning, silo design and planning, facility planning, environmental impact studies and assessments, logistics planning, and operational procedures.

B. Accomplishments/Planned Program

	FY2002	FY2003	FY2004	FY2005
Ground Based Interceptor (GBI)	856518	619592	0	0
RDT&E Articles (Quantity)	5	8	0	0

DISCUSSION. The GBI development program has successfully demonstrated a hit-to-kill capability in four (4) consecutive flight tests.

FY2002 Accomplishments:

RDT&E Test Articles: Acquired 2 GBIs (includes both EKV and boost vehicle) initiated in FY2001 for delivery in FY2002. Acquired 1 boost vehicle (Booster Verification Flight) in FY2001 for delivery in FY2002.

- Completed booster/EKV integration, ground/system tests, and successful flight test of Integrated Flight Test -8 (IFT8).
- Initiated acquisition of boosters for Booster Verification flights.
- Initiated acquisition of boosters for Integrated Flight Tests.
- Initiated Objective Booster development.
- Initiated common silo and common command launch equipment development.
- Continued development of EKV technologies to improve system discrimination, performance, and producibility in the areas of on-board sensors and processors, software/algorithms, vehicle maneuvering and C3 systems.
- Continued support for IFTs and ground test.
- Continued modeling and simulation development.

FY2003 Planned Accomplishments:

RDT&E Test Articles: Acquisition of 2 GBIs (includes both EKV and boost vehicles) was initiated in FY2001 for delivery in FY2003. Acquisition of 4 boost vehicles (Booster Verification Flights) was initiated in FY2001 for delivery in FY2003.

- Conducts booster/EKV integration, ground/system tests, and Integrated Flight Tests.
- Completes acquisition of boosters for Booster Verification flights.
- Conducts Booster Verification flights.
- Continues Objective Booster development.
- Continues common silo and common command launch equipment development.

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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-Initiates refurbishment of 2 silos at VAFB and equip for flight test.
 -Continues development of EK V technologies to improve system discrimination, performance, and producibility in the areas of on-board sensors and processors, software/algorithms, vehicle maneuvering, and C3 systems.
 -Continues modeling and simulation development.

	FY2002	FY2003	FY2004	FY2005
X Band Radar Technology Development	103094	86540	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION. X-Band radar technologies provide high resolution tracking and discrimination data to the Kill Vehicle here by significantly enhancing the tracking and discrimination capabilities of the system. This effort develops highly sophisticated software algorithms to enhance target discrimination and material and component enhancements to maximum power output and sensitivity.

FY2002 Accomplishments
 -Continued XBR systems integration into Test Bed architecture.
 -Continued development of systems design and ground testing program to measure system effectiveness.
 -Continued flight and ground test support.
 -Initiated XBR Test Equipment design.
 -Continued to develop and deploy XBR Software Builds.
 -Continued operation and maintenance of GBR -P.

FY2003 Planned Accomplishments
 -Continues XBR systems integration into Test Bed Architecture.
 -Continues development of systems design and ground testing program to measure system effectiveness.
 -Completes XBR Receiver/Exciter, Beam Steering Group software testing.
 -Continues to develop and deploy XBR Software Builds.
 -Continues flight and ground test support.
 -Supports Radar Certification Flight (RCF).
 -Continues operation and maintenance of GBR -P.

	FY2002	FY2003	FY2004	FY2005
Upgraded Early Warning Radar (UEWR) Development	36397	36200	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION. Upgraded Early Warning Radars (UEWRs) are large, fixed, phased array surveillance radars used to detect, track, and count individual targets early in their trajectory. UEWRs are also effective in cueing the higher resolution X-Band to the location and trajectory of incoming targets. The planned upgrades provide the capability of not only detecting, but provides precise tracking early enough to significantly expand the battlespace for the ground based interceptors into the early stages of flight. This development program will provide development of enhanced EWR software.

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FY2002 Accomplishments:
 -Continued flight and ground tests support.
 -Continued planning for potential future UEWR sites.
 -Continued the planning, assessment and evaluation of future software enhancements and technologies.

FY2003 Planned Accomplishments:
 -Continues flight and ground tests support.
 -Continues planning for potential future UEWR sites.
 -Supports radar certification flight.

	FY2002	FY2003	FY2004	FY2005
Element Engineering & Integration	182098	174701	0	0
RDT & E Articles (Quantity)	0	0	0	0

DISCUSSION. GMDElement Engineering provides engineering and analysis support for building and integration of the functional components of the 2004 Test Bed. Defines element -level test requirements and objectives and develops element -level assessments and capability -based requirements. Provides engineering, integration, and operations planning supporting an initial defensive operational capability. Continues the integration of component/element systems and sustains the planning effort for future deployment options. Continues to complement the BMDS systems engineering capability by providing detailed insight and analysis into component technical and design -specific issues.

FY2002 Accomplishments:
 -Completed Integration Phase (IP) 1 and Integrated Assessment Review (IAR).
 -Conducted software management and specialty engineering.
 -Conducted software verification and validation.
 -Conducted modeling and simulation development.
 -Conducted system analyses, integration, and verification.
 -Supported integrated ground tests and specialty testing.
 -Conducted pre - and post -flight test analyses.

FY2003 Planned Accomplishments:
 -Completes Integration Phase (IP) 2 and Integrated Assessment Review (IAR).
 -Completes IP -3 Integrated Technical Review (ITR).
 -Completes IP -4 Integrated Design Review (IDR).
 -Conducts software management and specialty engineering.
 -Conducts software verification and validation.
 -Conducts modeling and simulation development.
 -Conducts system analyses, integration, and verification.
 -Supports integrated ground tests and specialty testing.
 -Conducts pre - and post -flight test analyses.

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	FY2002	FY2003	FY2004	FY2005
GMD Fire Control & Communications	422477	216695	0	0
RDT&E Articles (Quantity)	0	0	0	0
<p>DISCUSSION. The GMD Fire Control and Communications (GMDFC/C) enables control and operation of the GMDElement as a single, integrated system. The communications component consists of (1) GMD Communications Network (GCN) and (2) the In-Flight Interceptor Communication Systems (IFICS).</p> <p>FY2002 Accomplishments: -Continued flight and ground test support. -Continued development and installation of Ground-Based Missile Defense (GMD) software builds. -Initiated ES development. -Initiated development and installation of Test Exercises software builds. -Continued development and installation of IFICS software builds.</p> <p>FY2003 Planned Accomplishments: -Continues flight and ground test support. -Continues development and installation of ES software builds. -Continues development and installation of IFICS software builds. -Initiates development and installation of Test Exercises software builds. -Continues development and installation of GMD software builds.</p>				
	FY2002	FY2003	FY2004	FY2005
Element Test and Evaluation	286416	250834	0	0
RDT&E Articles (Quantity)	2	2	0	0
<p>DISCUSSION. GMD Test and Evaluation consists of a comprehensive infrastructure of ground test facilities, ranges, sensors and instrumentation resources providing critical risk reduction and measurement of system performance for all GMDElement components. This infrastructure allows the element engineer to successfully model and simulate test results into projections of future system performance.</p> <p>The Combined Test Force, under a single unified organization, integrates developmental and operational test planning, share test resources, collects and assesses test data, collectively resolves test issues, and minimizes the duplication of test resources and the time required to execute required testing.</p> <p>FY2002 Accomplishments: RDT&E Test Articles: Acquired 2 targets initiated in FY2000 and delivered in FY2002.</p> <p>-Successfully conducted IFT7 and IFT8. -Continued operation and maintenance of System Test Lab, Prime Consolidated Integration Laboratory (PCIL), and Integrated System Test Capability (ISTC).</p>				

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- Continued ground and flight test planning, design, and scheduling.
- Performed pre -and post -test analyses.
- Performed analyses to define target requirements.

FY2003 Planned Accomplishments:

RDT&E Test Articles: Acquisition of 2 targets initiated in 2001 for delivery in FY2003.

- Successfully conducted IFT9.
- Continues operation and maintenance of System Test Lab, PCIL, and ISTC.
- Continues ground and flight test planning, design, and scheduling.
- Conducts Integrated Flight Tests.
- Performs pre -and post -test analyses.
- Performs analyses to define target requirements.
- Establish Element Test Objectives.

	FY2002	FY2003	FY2004	FY2005
Site Activation	72710	53682	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION. This effort provides a broad range of site design and layout, facility requirements, and environmental management activities.

FY2002 Accomplishments:

- Initiated site operations at Block 2004 Test Bed sites.
- Developed Test Bed site activation plans.
- Performed siting, NEPA, and ESH analysis for Block 2004 Test Bed.
- Completed design of Test Bed facilities.

FY2003 Planned Accomplishments:

- Continues Block 2004 Test Bed activation.
- Updates Test Bed site activation plans.
- Continues siting, NEPA, and ESH analysis for Block 2004 Test Bed.
- Initiates siting and Joint Spectrum Center (JSC) Electromagnetic Interference (EMI) analysis for SBX.

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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	FY2002	FY2003	FY 2004	FY2005
Program Planning and Management	159336	129641	0	0
RDT&E Articles (Quantity)	0	0	0	0

FY2002 Accomplishments:

- Provided government program office staff and infrastructure for the management of the GMD Program.
- Provided technical and business management expertise to support GMD Joint Program Office (JPO) tasks and activities, financial management, including cost and schedule performance assessments, configuration management, and integration planning activities.
- Provided requirements clarification and verification of hardware (H/W) and software (S/W) development including management of Independent Verification and Validation (IV&V) activities, test and evaluation planning and execution.
- Continued program management, subcontract management, quality assurance, and technical and testing oversight.

FY2003 Planned Accomplishments:

- Provides government program office staff and infrastructure for the management of the GMD Program.
- Provided technical and business management expertise to support GMD Joint Program Office (JPO) tasks and activities, financial management, including cost and schedule performance assessments, configuration management, and integration planning activities.
- Provides requirements clarification and verification of H/W and S/W development including management of IV&V activities, test and evaluation planning and execution.
- Continues program management, subcontract management, quality assurance, and technical and testing oversight.
- Provides for GMDs Interfacet to the BMD MDS National Team.

	FY2002	FY2003	FY2004	FY2005
Logistics Planning, Production and Protection	168887	248162	0	0
RDT&E Articles (Quantity)	0	0	0	0

GFX represents the materiel and services provided to the prime contractor in support of the GMD development and test efforts. It includes Government Furnished Equipment (GFE), Information (GFI), Facilities (GFF), and Services (GFS) (including communication leases).

FY2002 Accomplishments:

- Continued to coordinate and provide GFX (over 700 line items) to the prime contractor to support Test Bed activations and GMD test program.
- Continued to provide management efforts to activate logistic support system to include sites support activations and validation, logistical support requirements, and Test Bed readiness reviews.
- Conduct quality assurance planning and implementation.
- Continued to provide comprehensive on-site logistic support to the Site Activation Command (SAC) Alaska and other program extended Test Bed sites as required.
- Continued to provide functional support for production, quality, configuration and change management.
- Conducted sustainment, deployment, siting, and facility planning.
- Conducted reliability and maintainability analyses.
- Continued to provide program protection to the Test Bed including physical security.

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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FY2003 Planned Accomplishments:

- Continue to coordinate and provide GFX (over 700 lines items) to the prime contractor to support Test Bed activations and GMD test program.
- Continue to provide management effort to activate logistic support system to include sites support activations and validation, logistical support requirements, and Test Bed readiness reviews.
- Conduct quality assurance planning and implementation.
- Continue to provide comprehensive on-site logistic support to the Site Activation Command (SAC) Alaska and other program extended Test Bed sites as required.
- Continue to provide functional support for production, quality, configuration and change management.
- Conduct sustainment, deployment, siting, and facility planning.
- Conduct reliability and maintainability analyses.
- Continue to provide program protection to the Test Bed including physical security.

	FY2002	FY2003	FY2004	FY2005
Sea-Based X-Band Radar	41900	228000	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION.
 Note: This effort is moved to Project 0708 in FY2004 and 2005. The SBX development was initiated in FY2002 with the acquisition of long lead items associated with the radar. This acquisition is necessary to ensure that a Test XBR is ready to be integrated into the Ballistic Missile Defense System Test Bed in the fourth quarter of FY2005.

The Sea-Based Test X-Band Radar (SBX) is a Midcourse Defense sensor that will support Integrated Flight Tests and provide the capability of exercising all GMD sensor functions (weapon task plan, in-flight target update, target object map and kill assessment). The SBX will include an IFICS Data Terminal. The SBX will be a relocatable, phased array (half populated) radar. The ability of the SBX to be relocated enables full use of extended test range capabilities for all land and air target launches, provides more realistic siting, and facilitates operationally realistic testing. The SBX will be mounted on a modified sea-going, semi-submersible platform similar to the oil drilling platforms currently in use.

FY2002 Accomplishments:

RDT&E Test Articles: Initiates acquisition of one (1) Sea-Based Test X-Band Radar (SBX) in FY2002. Delivery is planned for FY2005. Initiates acquisition of one (1) IFICS Data Terminal (IDT) for the SBX in FY2002. Delivery is planned for FY2005.

- Initiated design and engineering planning for radar, platform, and supporting facilities.
- Initiated acquisition of long lead items associated with the radar.
- Initiated planning for necessary home porting operations for the sea-based platform.

FY2003 Planned Accomplishments:

- Initiates acquisition of the sea-based platform.
- Initiates acquisition of main radar structure.
- Initiates acquisition of radar electronic components.
- Initiates construction of operations and support structures and facilities for platform.
- Initiates acquisition of operations and support equipment for platform.

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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	FY2002	FY2003	FY2004	FY2005
Beale Early Warning Radar Upgrade	107900	64900	0	0
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION.

Note: This effort will be moved to Project 0708 in FY2004 and 2005.

The Beale Early Warning Radar (EWR) is a large, fixed, phased -arrays surveillance radar used to detect, track, and count individual target early in their trajectory. The planned Beale upgrades provide the capability of not only detecting, but provide precise tracking early enough to significantly expand the battlespace for the ground based interceptors into the early stages of flight. The Beale upgrades include both hardware and software enhancements to improve overall performance.

This effort will be moved to Project 3011 in FY2004 and 2005.

FY2002 Accomplishments:

- Continued flight and ground tests support.
- Continued development and deployment of UEW software builds.
- Initiated acquisition of Beale receiver -exciter and processors.
- Initiated Beale facility design.

FY2003 Planned Accomplishments:

- Continues flight and ground tests support.
- Completes prototype string hardware.
- Completes Beale facility Design.
- Completes Beale construction.
- Completes acquisition of Beale receiver -exciter and processors.
- Supports a Radar Certification Flight.

C. Other Program Funding Summary

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE0603869C Meads Concepts -Dem/Val	0	114781	0	0	0	0	0	0		
PE0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		

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PE0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603883C Ballistic Missile Defense Boost Defense Segment	583463	718036	626264	653612	755163	665772	477109	354346		
PE0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0604861C Theater High Altitude Area Defense System -TMD -EMD	818632	888323	0	0	0	0	0	0		
PE0604865C Patriot PAC -3 Theater Missile Defense Acquisition -EMD	130630	176155	0	0	0	0	0	0		
PE0604867C Navy Area Theater Missile Defense -EMD	96121	0	0	0	0	0	0	0		
PE0605502C Small Business Innovative Research -MDA	145102	0	0	0	0	0	0	0		
PE0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE 0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		

D. Acquisition Strategy

GMD 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 GMD part of the BMD ST Test Bed NLT 4th Quarter FY 2004 as an early Defensive Operational Capability 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 pace of technology development, (3) provide opportunities to update a changing set of standards, and (4) allow informed trade management to allow more operationally challenging representative flight tests and providing for increased testing against more challenging targets, and (2) increasing the fidelity of the projects simulations.

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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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I.ProductDevelopmentCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
GroundBasedInterceptor (GBI)												
	SS/CPAF	Boeing/Various	833248	593788	2/3Q	0		0		CONT.	1440721	CONT.
XBandRadarTechnology Development												
	SS/CPAF	Boeing/Various	87882	72382	1/2Q	0		0		CONT.	160264	CONT.
UpgradedEarlyWarning Radar(UEWR)Development												
	SS/CPAF	Boeing/Various	22408	22009	1/4Q	0		0		CONT.	44417	CONT.
ElementEngineering& Integration												
	SS/CPAF	Boeing/Various	135498	136602	1/2Q	0		0		CONT.	272100	CONT.
GMDFireControl&Comms												
	SS/CPAF	Boeing/Various	390660	199816	2Q	0		0		CONT.	590476	CONT.
ElementTestandEvaluation												
	SS/CPAF	Boeing/Various	113210	102253	1/2Q	0		0		CONT.	215463	CONT.
LogisticsPlanning,Producti on andProtection												
	SS/CPAF	Boeing/Various	19600	15800	1/2Q	0		0		CONT.	35400	CONT.
Sea-BasedX -BandRadar												
	SS/CPAF	Boeing/Various	41900	228000	2Q	0		0		CONT.	269900	CONT.
BealeEarlyWarningRadar Upgrade												
	SS/CPAF	Boeing/Various	107900	64900	1Q	0		0		CONT.	172800	CONT.
SubtotalProductDevelopment			1752306	1435550		0		0			3201541	

Remarks

ThePrimeContractorhastheresponsibilitytobalanceresourcesacrosstheGMDprogramandallocatefundingaccordingtopro gramprogress.ThismayrequirethePrimeContractortoreallocate funding,whichwouldchangetheestimatesprovidedinthisR -3document.

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MDA Exhibit R - 3RDT & E Project Cost Analysis										Date February 2003		
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment							
II. Support Costs Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Element Engineering & Integration												
	MIPR	TSC/SMDC/AL	1100	1000	2Q	0		0		CONT.	2100	CONT.
	MIPR	NSWC/Dahlgren, VA	5795	4125	2Q	0		0		CONT.	9920	CONT.
	MIPR	DTRA/Dulles, VA	1360	1000	2Q	0		0		CONT.	2360	CONT.
	MIPR	NAIC/Wright Patterson, AFB	900	700	2Q	0		0		CONT.	1600	CONT.
	MIPR	SBIRSSPO/LA AFB, CA	2900	1800	2Q	0		0		CONT.	4700	CONT.
	MIPR	DTD/GMD/Huntsville, AL	2200	1870	2Q	0		0		CONT.	4070	CONT.
	MIPR	GME Engineering Analysis/Huntsville, AL	3190	1980	2Q	0		0		CONT.	5170	CONT.
	MIPR	GMD Studies & Analysis/Huntsville, AL	1900	1700	2Q	0		0		CONT.	3600	CONT.
	SS/CPFF	CSC/Arlington, VA	18288	16901	2Q	0		0		CONT.	35189	CONT.
	MIPR	MIT Lincoln Labs/Cambridge, MA	973	815	2Q	0		0		CONT.	1788	CONT.
	MIPR	Photon Labs/Arlington, VA	1334	700	2Q	0		0		CONT.	2034	CONT.
	SS/CPAF	IDA/Arlington, VA	230	250	2Q	0		0		CONT.	480	CONT.
	C/CPAF	Miltec/Huntsville, AL	0	600	2Q	0		0		CONT.	600	CONT.
	MIPR	Aerospace Corp./Los Angeles, CA	550	0		0		0		TBD	550	TBD
	C/CPAF	Various	400	0		0		0		CONT.	400	CONT.

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MDAExhibitR -3RDT&EProjectCostAnalysis									Date February2003			
APPROPRIATION/BUDGETACTIVITY					R-1NOMENCLATURE							
4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					0603882CBallisticMissileDefenseMidcourseDefenseSegment							
	MIPR	JNIC/Colorado Springs,CO	5480	4658	2Q	0		0		CONT.	10138	CONT.
UpgradedEarlyWarning Radar(UEWR)Development												
	MIPR	Xontech/Boston, MA	2700	0		0		0		TBD	2700	TBD
	C/CPAF	TRW/JNIC	338	0		0		0		TBD	338	TBD
	C/CPFF	AFRL/ESC, HanscomAFB	120	0		0		0		TBD	120	TBD
XBandRadarTechnology Development												
	C/FP	TBE	1440	0		0		0		TBD	1440	TBD
	C/FP	CSC	552	0		0		0		TBD	552	TBD
	SS/CPAF	Ga.Tech	1730	1220	2Q	0		0		CONT.	2950	CONT.
	C/FP	Mevatech	7578	9273	2Q	0		0		CONT.	16851	CONT.
	MIPR	AMCOM	1667	1620	2Q	0		0		CONT.	3287	CONT.
	C/CPFF	Xontech	780	780	2Q	0		0		CONT.	1560	CONT.
GroundBasedInterceptor (GBI)												
	SS/FP	Davidson/AL	564	1157	2Q	0		0		CONT.	1721	CONT.
	SS/FP	Mevatec/AL	7282	7673	2Q	0		0		CONT.	14955	CONT.
	SS/FP	TSI/AL	5794	6782	2Q	0		0		CONT.	12576	CONT.
	C/CPFF	Sparta/AL	1730	1353	2Q	0		0		CONT.	3083	CONT.
	MIPR	AMCOM/AL	437	344	1/2Q	0		0		CONT.	781	CONT.
	MIPR	USASMDC/AL	337	380	2Q	0		0		CONT.	717	CONT.
	MIPR	DOT/ITOP/DC	487	224	2Q	0		0		CONT.	711	CONT.
	MIPR	Mitre/AL	131	283	2Q	0		0		CONT.	414	CONT.
	MIPR	Misc/Various	214	62	2Q	0		0		CONT.	276	CONT.
	Various	Misc/Various	1651	0		0		0		CONT.	1651	CONT.
	SS/FP	CSC/AL	7245	6600	2Q	0		0		CONT.	13845	CONT.
	MIPR	SMC/CA	8649	946	2Q	0		0		TBD	9595	TBD
SiteActivation												
	C/CPFF	CSC/AL	2217	2350	2Q	0		0		CONT.	4567	CONT.
	MIPR	Various	2917	1604	2Q	0		0		CONT.	4521	CONT.

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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment						
	MIPR	USACE/Huntsville, AL	6928	4422	2Q	0	0	0	CONT.	11350	CONT.
	C/CPFF	CSC/AL	2888	2420	2Q	0	0	0	CONT.	5308	CONT.
	C/CPFF	L3 Communications/A L	1789	1499	2Q	0	0	0	CONT.	3288	CONT.
	MIPR	U.S.ArmyWa r College/PA	1440	1207	2Q	0	0	0	CONT.	2647	CONT.
		Various	3050	2119	2Q	0	0	0	CONT.	5169	CONT.
	C/CPFF	Mevatech/AL	1817	3652	2Q	0	0	0	CONT.	5469	CONT.
	C/CPFF	CSC/AL	1078	1573	2Q	0	0	0	CONT.	2651	CONT.
	C/CPFF	CSC/AL	6413	4577	2Q	0	0	0	CONT.	10990	CONT.
	C/CPFF	Colsa/AL	225	301	2Q	0	0	0	CONT.	526	CONT.
	MIPR	USACE/Huntsville, AL	1000	1336	2Q	0	0	0	CONT.	2336	CONT.
	C/CPFF	CSC/AL	1898	2024	2Q	0	0	0	CONT.	3922	CONT.
	C/CPFF	L3 Communications/A L	1291	1377	2Q	0	0	0	CONT.	2668	CONT.
	MIPR	USASMD/AL	4765	2659	2Q	0	0	0	CONT.	7424	CONT.
	MIPR	USARAK/AK	12691	3813	2Q	0	0	0	CONT.	16504	CONT.
		Various	920	982	2Q	0	0	0	CONT.	1902	CONT.
	SS/CPAF	Boeing/Various	19383	15767	1/2Q	0	0	0	TBD	35150	TBD
ProgramPlanningand Management											
SPTDC	C/CPAF	CSC/DC	94875	86862	1/2Q	0	0	0	CONT.	181737	CONT.
SPTHSV	C/CPAF	CSC/AL	43325	26910	1/2Q	0	0	0	CONT.	70235	CONT.
TRADOCSystemManager	MIPR	SMDC/AL	21136	15869	1/2Q	0	0	0	CONT.	37005	CONT.
LogisticsPlanning,Production andProtection											
Logistic/GFX	C/CPFF	CSC/SYTech	709	0		0	0	0	TBD	709	TBD
	C/CPFF	CSC/AL	612	1072	3Q	0	0	0	CONT.	1684	CONT.
	C/CPFF	L3 Communications/ AL	1018	2584	3Q	0	0	0	CONT.	3602	CONT.

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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment							
	C/CPFF	Mevatech/AL	862	902	3Q	0		0		CONT.	1764	CONT.
	C/CPFF	TSI/AL	450	910	3Q	0		0		CONT.	1360	CONT.
	C/CPFF	MSAIC	48	96	3Q	0		0		CONT.	144	CONT.
	MIPR	AMCOM/IMMC	690	1625	2/3Q	0		0		CONT.	2315	CONT.
	MIPR	AMCOM/OGA	0	3618	2/3Q	0		0		CONT.	3618	CONT.
	C/CPFF	Mevatech/AL	425	1201	2/3Q	0		0		CONT.	1626	CONT.
	C/CPFF	CSC	100	0		0		0		TBD	100	TBD
	C/CPFF	SYTech	2100	3349	2/3Q	0		0		CONT.	5449	CONT.
	MIPR	Colsa/AL	65	65	2/3Q	0		0		CONT.	130	CONT.
	MIPR	COE	40922	29705	2/3Q	0		0		CONT.	70627	CONT.
	MIPR	DTRA/VA	275	275	2/3Q	0		0		CONT.	550	CONT.
	MIPR	NSA/VA	6	6	2/3Q	0		0		CONT.	12	CONT.
	MIPR	USACE/AL	5353	5353	2/3Q	0		0		CONT.	10706	CONT.
	MIPR	USASMDC/AL	500	500	2/3Q	0		0		CONT.	1000	CONT.
	MIPR	USAFMET&CAL	609	609	2/3Q	0		0		CONT.	1218	CONT.
	MIPR	SchrieverAFB	400	400	2/3Q	0		0		CONT.	800	CONT.
	MIPR	NSA	21	21	2/3Q	0		0		CONT.	42	CONT.
	MIPR	SchrieverAFB	59	59	2/3Q	0		0		CONT.	118	CONT.
	MIPR	CST	150	150	2/3Q	0		0		CONT.	300	CONT.
	MIPR	USASMDC/AL	1376	1376	2/3Q	0		0		CONT.	2752	CONT.
	C/CPFF	CSC/AL	384	0		0		0		TBD	384	TBD
	C/CPFF	Sparta/AL	384	0		0		0		TBD	384	TBD
	MIPR	AMCOM/AL	906	0		0		0		TBD	906	TBD
	MIPR	OGA	446	0		0		0		TBD	446	TBD
		USACE/AL	2000	0		0		0		TBD	2000	TBD
ProgramProtection	C/CPAF	TRW/DC/AL	4300	2750	2/3Q	0		0		TBD	7050	TBD
	MIPR	USASMDC/AL/AL	2380	2750	2/3Q	0		0		TBD	5130	TBD
	Other	Various	800	2312	2Q	0		0		CONT.	3112	CONT.
Production	MIPR	AMRDEC/AL	1600	3300	2/3Q	0		0		CONT.	4900	CONT.
	C/CPFF	Various/AL	3472	3274	2/3Q	0		0		CONT.	6746	CONT.
GovtFurnishedInformation	MIPR	USASMDC/AL	75865	98900	1Q	0		0		TBD	174765	TBD
BaseSupportandRealProperty	MIPR	USASMDC/AL	0	65200	1Q	0		0		CONT.	65200	CONT.
SubtotalSupportCosts			479359	492481		0		0			971840	

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MDA Exhibit R -3RDT&E Project Cost Analysis	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Remarks

The Prime Contractor has the responsibility to balance resources across the GMD program and allocate funding according to program progress. This may require the Prime Contractor to reallocate funding, which would change the estimates provided in this R-3 document.

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

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Element Test and Evaluation												
Combined Test Force	C/CPAF	Colsa/AL	7527	6021	2Q	0		0		CONT.	13548	CONT.
	C/CPIF	ASGI/AL	507	406	2Q	0		0		CONT.	913	CONT.
	SS/CPAF	Boeing/Variou	2250	1800	2Q	0		0		CONT.	4050	CONT.
	MIPR	Kirtland AFB/NM	225	180	2Q	0		0		CONT.	405	CONT.
	MIPR	USAKA/AK	22578	18095	2Q	0		0		CONT.	40673	CONT.
	MIPR	Sandia/NM	125	100	2Q	0		0		CONT.	225	CONT.
	MIPR	USASMD/AL	3081	2465	2Q	0		0		CONT.	5546	CONT.
	C/TM	JNTE/CO	1861	1489	2Q	0		0		CONT.	3350	CONT.
	MIPR	Nichols/AL	1119	895	2Q	0		0		CONT.	2014	CONT.
	C/TM	Mevatech/AL	5412	4329	2Q	0		0		CONT.	9741	CONT.
	C/TM	CSC/AL	2226	1781	2Q	0		0		CONT.	4007	CONT.
	C/CPIF	Aeromet/Variou	1153	922	2Q	0		0		CONT.	2075	CONT.
	MIPR	SBIRSSPO	610	488	2Q	0		0		CONT.	1098	CONT.
	MIPR	AMCOM/AL	1728	1382	2Q	0		0		CONT.	3110	CONT.
	MIPR	USARSPACE/AL	137	110	2Q	0		0		CONT.	247	CONT.
	MIPR	Eglin AAFB/FL	150	120	2Q	0		0		CONT.	270	CONT.
	MIPR	Peterson AFB/CO	348	278	2Q	0		0		CONT.	626	CONT.
	MIPR	OGA's/Variou	612	488	2Q	0		0		CONT.	1100	CONT.
	C/CPFF	IEC Electronics/Variou	3069	2455	2Q	0		0		CONT.	5524	CONT.
	C/TM	CAS/Variou	1100	880	2Q	0		0		CONT.	1980	CONT.
	MIPR	MITLLNL/MA	4944	3955	2Q	0		0		CONT.	8899	CONT.
	C/CPFF	ITT/Variou	2480	1984	2Q	0		0		CONT.	4464	CONT.

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MDAExhibitR -3RDT&EProjectCostAnalysis										Date February2003		
APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment							
	MIPR	AEDC/TN	25	20	2Q	0		0		CONT.	45	CONT.
	MIPR	Sandia/NM	3566	2853	2Q	0		0		CONT.	6419	CONT.
	C/Other	Mevatech/AL	100	80	2Q	0		0		CONT.	180	CONT.
	MIPR	HAFB/MA	1120	896	2Q	0		0		CONT.	2016	CONT.
	MIPR	SMDC/AL	93	74	2Q	0		0		CONT.	167	CONT.
	Other	TSI/AL	1005	804	2Q	0		0		CONT.	1809	CONT.
	C/CPFF	VRC/AL	2953	2362	2Q	0		0		CONT.	5315	CONT.
	C/CPFF	Colsa/AL	420	336	2Q	0		0		CONT.	756	CONT.
	MIPR	SLAD/AL	175	140	2Q	0		0		CONT.	315	CONT.
	C/CPFF	CEI/AL	647	518	2Q	0		0		CONT.	1165	CONT.
	C/CPFF	TRW/AL	2333	1866	2Q	0		0		CONT.	4199	CONT.
	MIPR	VariousOGA`s	1361	1089	2Q	0		0		CONT.	2450	CONT.
	C/CPFF	SAIC/Various	945	756	2Q	0		0		CONT.	1701	CONT.
	MIPR	AEC/Various	788	630	2Q	0		0		CONT.	1418	CONT.
	MIPR	Sandia/NM	29195	33518	2Q	0		0		CONT.	62713	CONT.
	MIPR	USASMDC/AL	8814	7051	2Q	0		0		CONT.	15865	CONT.
	C/CPFF	SYTech/AL	2370	1896	2Q	0		0		CONT.	4266	CONT.
	MIPR	SMC/AL	36116	28891	2Q	0		0		CONT.	65007	CONT.
	MIPR	OGA`s/Various	5425	4340	2Q	0		0		CONT.	9765	CONT.
	MIPR	Vandenberg AFB/CA	3457	2765	2Q	0		0		CONT.	6222	CONT.
TTEC	C/CPFF	SYTech/AL	5907	3012	1/2Q	0		0		CONT.	8919	CONT.
	MIPR	SED/AL	1050	671	2Q	0		0		CONT.	1721	CONT.
TTEC	MIPR	STRICOM/FL	1078	488	2Q	0		0		CONT.	1566	CONT.
	Various	Various/Various	1021	2902	2Q	0		0		CONT.	3923	CONT.
SubtotalTestandEvaluation			173206	148581		0		0			321787	
Remarks												
ThePrimeContractor hastheresponsibilitytobalanceresourcesacrosstheGMDprogramandallocatefundingaccordingtoprogramprogress.ThisrequirethePrimeContractortoreallocate funding,whichwouldchangetheestimatesprovidedinthisR -3document.												

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MDA Exhibit R - 3 RDT & E Project Cost Analysis									Date February 2003			
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment							
IV.M anagement Services Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
GMDFire Control & Comms												
	MIPR	NSWC/MD	4605	3315	2Q	0		0		CONT.	7920	CONT.
	C/CPAF	TRW/MA	8287	3911	2Q	0		0		CONT.	12198	CONT.
	FFRDC	Mitre/IDA/Various	1545	1147	2Q	0		0		CONT.	2692	CONT.
	C/CPAF	Sparta/AL	3548	3053	2Q	0		0		CONT.	6601	CONT.
	C/CPAF	NRC/Various	714	688	2Q	0		0		CONT.	1402	CONT.
	C/BPA	QRI/Various	959	874	2Q	0		0		CONT.	1833	CONT.
	C/CPAF	CSC/AL	1852	1767	2Q	0		0		CONT.	3619	CONT.
	C/CPAF	Vanguard Research/AL	171	84	2Q	0		0		CONT.	255	CONT.
	BPA	Tecolote/Various	582	0		0		0		TBD	582	TBD
	MIPR	USAFESC/MA	84	69	2Q	0		0		CONT.	153	CONT.
	MIPR	ARL/CA	300	247	2Q	0		0		CONT.	547	CONT.
	MIPR	DISA-GFX/Various	5531	0		0		0		TBD	5531	TBD
	C/CPAF	Mevatech/AL	836	668	2Q	0		0		CONT.	1504	CONT.
	C/CPAF	TBD	885	707	2Q	0		0		CONT.	1592	CONT.
	C/CPAF	TSI	252	201	2Q	0		0		CONT.	453	CONT.
	MIPR	NSA/MD	500	0		0		0		TBD	500	TBD
	MIPR	ArgonneNL	195	140	2Q	0		0		CONT.	335	CONT.
	Various	Miscellaneous	971	8	2Q	0		0		CONT.	979	CONT.
XBand Radar Technology Development												
	FFRDC	MIT Lincoln Lab/MA	1765	1265	2Q	0		0		CONT.	3030	CONT.
Upgraded Early Warning Radar (UEWR) Development												
	FFRDC	MIT Lincoln Lab/MA	600	228	2Q	0		0		CONT.	828	CONT.
	FFRDC	Mitre/Various	5763	9274	1/3Q	0		0		CONT.	15037	CONT.
	C/CPFF	SECOM/Various	3654	3864	1/3Q	0		0		CONT.	7518	CONT.

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MDAExhibitR -3RDT&EProjectCostAnalysis										Date February2003		
APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment							
	C/CPFF	Tecolote/Various	264	264	1/3Q	0		0		CONT.	528	CONT.
	C/CPFF	ESC/Hanscom/Vari ous	550	561	1/4Q	0		0		CONT.	1111	CONT.
SubtotalManagementServices			44413	32335		0		0			76748	
Remarks ThePrimeContractorhastheresponsibilitytobalanceresourcesacrosstheGMDprogramandallocatefundingaccordingtoprogramprogress.ThisrequirethePrimeContractortoreallocatefunding,whichwouldchangetheestimatesprovidedinthisR -3document.												
ProjectTotalCost			2449284	2108947		0		0			4571916	
Remarks ThePrimeContractorhastheresponsibilitytobalanceresourcesacrosstheGMDprogramandallocatefundingaccordingtoprogramprogress.ThisrequirethePrimeContractortoreallocatefunding,whichwouldchangetheestimatesprovidedinthisR -3document.												

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MDAExhibitR -4AScheduleDetail						Date February2003		
APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)				R-1NOMENCLATURE 0603882CBallisticMissileDefenseMi dcourseDefenseSegment				
ScheduleProfile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
Milestones								
DecisionPoints	3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q
IntegratedFlightTest								
IFT07	1Q							
IFT08	2Q							
IFT09		1Q						
IFT10		1Q						
IFT13A -BoosterVerification		3Q						
IFT13B -BoosterVerification		4Q						
IFT14			1Q					
IFT15			3Q					
IFT17				2Q				
IFT18				4Q				
IFT21					2Q			
IFT22					4Q			
IFT23/24MultipleSimultaneousEngagements						2Q		
IFT26						3Q		
IFT29							1Q	
IFT30								1Q
BoosterVerificationTest								
BV3	1Q							
BV5		2Q						
BV6		3Q						

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MDA Exhibit R -2 ARDT&E Project J ustification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
0808 Ground -Based Midcourse Defense (GMD) Test Bed Block 2006	0	0	1605368	1773621	1354462	1235116	0	0
RDT&E Articles Qty	0	0	6	6	6	9	0	0

A. Mission Description and Budget Item Justification

This Budget Project was previously captured in Project 3012 in FY 2002 and 2003.

The Ground -based Midcourse Defense (GMD) System Element of the Midcourse Defense Segment (MDS) consists of a series of block development efforts supporting the midcourse phase of the BMDS. The Block 2004 consists of the early development and construction of the initial GMD part of the BMDS Test Bed (initiated under Project 3011). Block 2006 (Project 0808) consists of the development of capabilities to detect, track, intercept, and defeat ballistic missile threat to the U.S. during the midcourse phase of flight as well as GMD improvements to the BMDS Test Bed (initiated under Project 3012, GMD Development and Test Bed Upgrades). GMD development efforts continue with Block 2008 (Project 0908) and consist of sustaining engineering and spiral upgrades to the GMD components of the Block 2004/06 BMDS Test Bed. These efforts will include block upgrades to GMD components.

Project 3012 and 0808, Ground -based Midcourse Defense (GMD) Block 2006, provides hardware, planning, mission support and execution of the GMD test program. It also provides a broad range of development activities and technologies and components for the ground -based element of Ballistic Missile Defense System (BMDS). This development effort will mature key technologies in logical stages to allow for an initial capability, an enhanced and more robust BMDS Test Bed (using operationally representative vehicle hardware and software, and development of hardware and software), and a continuing program to develop and demonstrate a wider range of technologies supporting a ground -based "Hit -to-Kill" capability. This could also require exploring the acquisition of additional sensors such as an X -band radar. This project requires infrastructure support for the GMD program at Redstone Arsenal, Alabama.

The GMD Development program provides an integrated development and test program of more capable interceptors (both boost and kill vehicles), targets, sensors, and Battle Management, Fire Control, Communication systems and infrastructure.

-The Objective Boost Vehicle (OBV) will be the launch vehicle for the Exo -atmospheric Kill Vehicle (EKV). The OBV is in development with booster verification flight tests planned in FY 2003. Until the initial OBV candidates have completed testing and are certified for use in the MDS flight test program, the Payload Launch Vehicle (PLV) has been used.

-The EKV "Hit -to-Kill" payload is designed to acquire, discriminate, track, and intercept targets in the midcourse phase of flight. The key components and technologies of the EKV include the acquisition and tracking sensors, the on -board maneuvering system, and the on -board vehicle C3 systems. Component development is on -going and is demonstrated as part of the block improvement process in the Integrated Flight Test program.

-The sensor development program is a mix of enhancements to existing radar assets and development of new radar capabilities. The program will continue the upgrades to the Early Warning Radar at Beale. Continues planning for potential upgrades to other Early Warning Radar (EWR) sites. The key elements of the upgrades are the software build to improve the effectiveness of the radars. A broad range of X -Band Radar (XBR) technologies will continue in development. The Ground Based Radar Prototype (GBR -P) located at the Ronald Reagan Test Site (RTS), at Kwajalein, is being used as part of the Integrated Flight Test program. It serves as a demonstration platform for these evolving radar technologies.

-The GMD Fire Control and Communications component is an integrated communications network of nodes, to enable the GMD Element to function as an integrated system. This includes:
 1. Various communications links (e.g., CONUS ring, Alaska leased lines and Satellite Communications (SATCOM) to Shemya, Ft. Greely, and In -Flight Interceptor Communication System (IFICS) Data Terminals (IDTs).
 2. GMD Fire Control and Communications Nodes [Ft. Greely and Joint National Integration Center (JNIC) with remote operator workstations at Cheyenne Mountain Operations Center (CMOC)]
 3. In -Flight Interceptor Communications System Data Terminal (IDTs) at various locations.

Block development initiatives continue on these technologies and components meeting future block capability requirements. This effort will be developed to be consistent with the BMDS BMC/C2 architecture.

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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-The GMD Development program supports the requirements of the test program including Integrated Flight and Ground Tests. The GMD test program is designed to demonstrate a broad range of GMD component development efforts. These incremental capabilities include multiple launches against multiple threat targets as the block capabilities mature. These test components include targets, launch vehicles, EKV's, launch infrastructure, sensors, test range assets, and other mission support. Additionally, the test program will incorporate Aegis Weapon System (AWS) radar support GMD integrated flight test program as soon as practicable.

-Planning continues to provide a capability to respond to a future deployment order in the shortest time possible. This includes site surveys and activation planning, silo design and planning, facility planning, environmental impact studies and assessments, logistics planning, and operational procedures.

Note: This Project has been restructured beginning in FY2004 to continue Project 3012. This restructuring represents MDA's Block development and management framework for the BMDS.

B. Accomplishments/Planned Program

	FY2002	FY2003	FY2004	FY2005
Ground Based Interceptor (GBI)	0	0	483253	563725
RDT&E Articles (Quantity)	0	0	4	4

DISCUSSION. The GBI development program has successfully demonstrated a hit-to-kill capability in four (4) consecutive flight tests.

FY2004 Planned Accomplishments:

RDT&E Test Articles: Acquisition of 2 GBIs (includes both EKV and boost vehicles) was initiated in FY2002 for delivery in FY2004.

- Complete refurbishment of 2 silos at VAFB and equip for flight test.
- Continue interceptor integration, ground/system tests, and Integrated Flight Tests.
- Continue modeling and simulation development.
- Continue common silo and common command launch equipment development.
- Continue development of EKV technologies to improve system discrimination, performance, and producibility in the areas of on-board sensors and processors, software/algorithms, vehicle maneuvering, and C3 systems.

FY2005 Planned Accomplishments:

RDT&E Test Articles: Acquisition of 2 GBIs (includes both EKV and boost vehicles) was initiated in FY2003 for delivery in FY2005.

- Continue Silo/GBI/launch systems ground testing, system level simulation, and Verification, Validation, and Accreditation activities.
- Continue interceptor, ground/system tests, and Integrated Flight Tests.
- Continue modeling and simulation development.
- Complete common silo and common command launch equipment development.

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MDA Exhibit R -2 ARDT&E Project Justification			Date February 2003	
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment		
	FY2002	FY2003	FY2004	FY2005
X-Band Radar Technology Development	0	0	71088	68006
RDT&E Articles (Quantity)	0	0	0	0
<p>DISCUSSION. X-Band radar technologies provide high resolution tracking and discrimination data to the Kill Vehicle thereby significantly enhancing the tracking and discrimination capabilities of the system. This effort develops highly sophisticated software algorithms to enhance target discrimination and material and component enhancements to maximum power output and sensitivity.</p> <p>FY2004 Planned Accomplishments:</p> <ul style="list-style-type: none"> - Continue to develop and deploy XBR Software Builds. - Continue flight and ground tests support. - Continue operation and maintenance of GBR -P. - Continue the planning, assessment and evaluation of future X-Band technologies, including technology insertion (Project Hercules). <p>FY2005 Planned Accomplishments:</p> <ul style="list-style-type: none"> - Continue to develop and deploy XBR Software Builds. - Continue flight and ground tests support. - Supports Radar Certification Flights (RCF). - Continue operation and maintenance of GBR -P. - Continue the planning, assessment and evaluation of future X-Band technologies, including technology insertion (Project Hercules). 				
	FY2002	FY2003	FY2004	FY2005
Upgraded Early Warning Radar (UEWR) Development	0	0	35876	84486
RDT&E Articles (Quantity)	0	0	0	0
<p>DISCUSSION. Upgraded Early Warning Radars (UEWRs) are large, fixed, phased -arrays surveillance radars used to detect, track, and count individual target early in their trajectory. UEWRs are also effective in cueing the higher resolution X-Band to the location and trajectory of incoming targets. The planned upgrades provide the capability of not only detecting, but provides precise tracking early enough to significantly expand the battlespace for the ground-based interceptors into the early stages of flight. This program will provide for the development of enhanced EWR software.</p> <p>FY2004 Planned Accomplishments:</p> <ul style="list-style-type: none"> - Continue flight and ground tests support. - Continue planning for potential future UEWR sites. <p>FY2005 Planned Accomplishments:</p> <ul style="list-style-type: none"> - Continue flight and ground tests support. - Continue planning for potential future UEWR sites. - Supports radar certification flights. 				

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MDA Exhibit R -2 ARDT&E Project Justification			Date February 2003	
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment		
	FY2002	FY2003	FY2004	FY2005
Element Engineering & Integration	0	0	182084	183114
RDT&E Articles (Quantity)	0	0	0	0
<p>DISCUSSION. GMDElement Engineering provides engineering and analysis support for building and integration of the functional components of the 2004 Test Bed. Defines element requirements and objectives and develops element -level assessments and capability-based requirements. Provides engineering, integration, and operations planning supporting an initial defensive operational capability. Continues the integration of component/element systems and sustains the planning effort for future deployment options. Continues to complement the BMDS systems engineering capability by providing detailed insight and analysis into component technical and design -specific issues.</p> <p>FY2004 Planned Accomplishments: -Completes IP -4 Integrated Technical Review (ITR). -Completes IP -5 Integrated Design Review (IDR). -Continues software management and specialty engineering. -Continues software verification and validation. -Continues modeling and simulation development. -Continues system analyses, integration, and verification. -Supports integrated ground tests and specialty testing. -Conducts pre -and post -flight test analyses.</p> <p>FY2005 Planned Accomplishments: -Completes IP -5 Integrated Technical Review (ITR). -Continues software management and specialty engineering. -Continues software verification and validation. -Continues modeling and simulation development. -Continues system analyses, integration, and verification. -Supports integrated ground tests and specialty testing. -Conducts pre -and post -flight test analyses.</p>				
	FY2002	FY2003	FY2004	FY2005
GMD Fire Control & Communications	0	0	217968	221236
RDT&E Articles (Quantity)	0	0	0	0
<p>DISCUSSION. The GMD Fire Control and Communications (FC/C) enables control and operation of the GMDElement as a single ,integrated system. The communications component consists of (1) GMD Communications Network (GCN) and (2) the In -Flight Interceptor Communication Systems (IFICS).</p> <p>FY2004 Planned Accomplishments: -Continues flight and ground test support. -Continues development and installation of ESI software builds.</p>				

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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- Continues development and installation of IFICS software builds.
- Initiates development and installation of Test Exercises software builds.
- Continues development and installation of GMD software builds.
- Continues the planning, assessment and evaluation of future FC/C software and technologies enhancements.

FY2005 Planned Accomplishments:

- Continues flight and ground tests support.
- Continues development and installation of IFICS software builds.
- Initiates development and installation of Test Exercises software builds.
- Continues development and installation of GMD software builds.
- Continues the planning, assessment and evaluation of future FC/C software and technologies enhancements.
- Note: Continues software development/upgrades begun in Project 0708.

	FY2002	FY2003	FY2004	FY2005
Element Test and Evaluation	0	0	203017	207407
RDT&E Articles (Quantity)	0	0	2	2

DISCUSSION. GMD Test and Evaluation consists of a comprehensive infrastructure of ground -test facilities, ranges, sensors and instrumentation resources providing critical risk reduction and measurement of system performance for all GMD element components. This infrastructure allows the element engineers to successfully model and simulate test results into projection of future system performance. The Combined Test Force, under a single unified organization, integrates developmental and operational test planning, shares test resources, collects and assesses test data, collectively resolves test issues, and minimizes the duplication of test resources and the time required to execute required testing.

FY2004 Planned Accomplishments:

RDT&E Test Articles: Acquisition of 2 targets initiated in 2002 for delivery in FY2004.

- Continue operation and maintenance of System Test Lab, PCIL, and ISTC.
- Continues ground and flight test planning, design, and scheduling.
- Conducts Integrated Flight Tests.
- Performs pre -and post -test analyses.
- Performs analyses to define target requirements.
- Establish Element Test Objectives.

FY2005 Planned Accomplishments:

RDT&E Test Articles: Acquisition of 2 targets initiated in 2003 for delivery in FY2005.

- Continues operation and maintenance of System Test Lab, PCIL, and ISTC.
- Continues ground and flight test planning, design, and scheduling.

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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- Conducts Development Integrated Ground Test.
- Conducts Distributed Ground Test (DGT).
- Conducts Integrated Flight Tests.
- Performs pre -and post -test analyses.
- Performs analyses to define target requirements.
- Establish Element Test Objectives.

	FY2002	FY2003	FY2004	FY2005
Site Activation	0	0	38572	36655
RDT&E Articles (Quantity)	0	0	0	0

DISCUSSION. This effort provides a broad range of site design and layout, facility requirements, and environmental management activities.

FY2004 Planned Accomplishments:

- Initiates Planning and Design of an additional facility at the Von Braun Complex located at the Redstone Arsenal to consolidate MDA personnel and activities currently located in a number of dispersed locations. Construction is planned to begin in FY2006.
- Continues Block 2004 Test Bed activation.
- Updates Test Bed site activation plans.
- Continues siting, NEPA, and ESH analysis for Block 2004 Test Bed.
- Completes siting and Joint Spectrum Center Electromagnetic Interference analysis for SBX.

FY2005 Planned Accomplishments:

- Continues Planning and Design of an additional facility at the Von Braun Complex located at the Redstone Arsenal to consolidate MDA personnel and activities currently located in a number of dispersed locations. Construction is planned to begin in FY2006.
- Initiates Planning and Design of upgrader to existing airfield facilities at Allen Army Airfield to provide the BMD Test Bed with improved runway capability to enable the safe transport of GBI interceptors and other critical equipment to Fort Greely. Construction is planned to begin in FY2007.
- Continues Test Bed support.
- Updates Test Bed site activation plans.
- Continues siting, NEPA, and ESH analysis for Block 2004 Test Bed.

	FY2002	FY2003	FY2004	FY2005
Program Planning and Management	0	0	138306	131653
RDT&E Articles (Quantity)	0	0	0	0

FY2004 Planned Accomplishments:

- Provides government program office staff and infrastructure for the management of the GMD Program.

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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- Provides technical and business management expertise to support GMD Joint Program Office (JPO) tasks and activities, financial management, including cost and schedule performance assessments, configuration management, and integration planning activities.
- Provides requirements clarification and verification of H/W and S/W development including management of IV & V activities, test and evaluation planning and execution.
- Continues program management, subcontract management, quality assurance, and technical and testing oversight.
- Provides for GMD's interface to the BMD National Team.

FY2005 Planned Accomplishments:

- Provides government program office staff and infrastructure for the management of the GMD Program.
- Provides technical and business management expertise to support GMD Joint Program Office (JPO) tasks and activities, financial management, including cost and schedule performance assessments, configuration management, and integration planning activities.
- Provides requirements clarification and verification of H/W and S/W development including management of IV & V activities, test and evaluation planning and execution.
- Continues program management, subcontract management, quality assurance, and technical and testing oversight.
- Provides for GMD's interface to the BMD National Team.

	FY2002	FY2003	FY2004	FY2005
Logistics Planning, Production and Protection	0	0	235204	277339
RDT&E Articles (Quantity)	0	0	0	0

GFX represents the materiel and services provided to the prime contractor in support of the GMD development and test efforts. It includes Government Furnished Equipment (GFE), Information (GFI), Facilities (GFF), and Services (GFS) (including communication leases).

FY2004 Planned Accomplishments:

- Continue to coordinate and provide GFX (over 700 line items) to the prime contractor to support Test Bed activation and GMD test program.
- Continue to provide management effort to activate logistic support system to include Test Bed site support activation and validation, logistical support requirements, and Test Bed readiness reviews.
- Continue to provide comprehensive on-site logistic support to the Site Activation Command (SAC) Alaska and other program extended Test Bed sites as required.
- Conducts quality assurance planning and implementation.
- Continue to provide functional support for production, quality, configuration and change management.
- Conducts sustainment, deployment, siting, and facility planning.
- Continue to provide program protection to the Test Bed including physical security.
- Conducts reliability and maintainability analyses.

FY2005 Planned Accomplishments:

- Continue to coordinate and provide GFX (over 700 line items) to the prime contractor to support Test Bed activation and GMD test program.
- Continue to provide management effort to activate logistic support system to include Test Bed site support activations and validation, logistical support requirements, and Test Bed readiness reviews.
- Continue to provide comprehensive on-site logistic support to the Site Activation Command (SAC) Alaska and other program extended Test Bed sites as required.
- Continue to provide functional support for production, quality, configuration and change management.
- Conducts sustainment, deployment, siting, and facility planning.

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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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- Conductsreliabilityandmaintainabilityanalyses.
- ContinuestoprovideprogramprotectiontotheTestBedincludingphysicalsecurity.

C.OtherProgramFundingSummary

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603880CBallisticMissileDefense SystemSegment	790535	1046652	0	0	0	0	0	0		
PE0603879CAdvancedConcepts, EvaluationsandSystems	0	0	151696	216778	166308	193949	241947	234484		
PE0 603881CBallisticMissileDefense TerminalDefenseSegment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603883CBallisticMissileDefenseBoost DefenseSegment	583463	718036	626264	653612	755163	665772	477109	354346		
PE0603884CBallisticMissileDefense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0603886CBallisticMissileDefense SystemInterceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603890CBallisticMissileDefense SystemEngineering andIntegration	0	0	483996	522458	604445	628594	703055	706501		
PE0603888CBallisticMissileDefenseTest andTargets	0	0	611522	711181	661416	643302	639839	672396		
PE0603889CBallisticMissileDefense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0603869CMeasConcepts -Dem/Val	0	114781	0	0	0	0	0	0		
PE0603175CBallisticMissileDefense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE0604865CPatriotPAC -3TheaterMissile DefenseAcquisition -EMD	130630	176155	0	0	0	0	0	0		
PE0604867CNavyAreaTheaterMissile Defense -EMD	96121	0	0	0	0	0	0	0		
PE0605502CSmallBusinessInnovative Research -MDA	145102	0	0	0	0	0	0	0		
PE0901585CPentagonReservation	6381	7432	14481	13384	12758	12850	13158	13476		

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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PE0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE0604861C Theater High -Altitude Area Defense System -TMD -EMD	818632	888323	0	0	0	0	0	0		

D. Acquisition Strategy

GMD 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 GMD parts of the BMD Test Bed NLT 4th Quarter FY 2004 as an early BMD 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. The development approach has been enhanced to include (1) adding test infrastructure and improving test management to allow more operationally challenging representative flight tests and providing for increased testing against more challenging targets, and (2) increasing the fidelity of the project simulations.

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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment							
I.ProductDevelopment Cost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
GroundBasedInterceptor (GBI)												
GroundBasedInterceptor(GBI)	SS/CPAF	Boeing/Various	0	0		456985	1/2Q	538770	1/2Q	CONT.	995755	CONT.
XBandRadarTechnology Development												
XBandRadarTechnology Development	SS/CPAF	Boeing/Various	0	0		56716	1/2Q	54352	1/2Q	CONT.	111068	CONT.
UpgradedEarlyWarning Radar(UEWR)Development												
UpgradedEarlyWarningRadar (UEWR)Development	SS/CPAF	Boeing/Various	0	0		21430	1/4Q	70762	1/4Q	CONT.	92192	CONT.
ElementEngineering& Integration												
	SS/CPAF	Boeing/Various	0	0		143198	1/2Q	146173	1/2Q	CONT.	289371	CONT.
GMDFireControl&Comms												
	SS/CPAF	Boeing/Various	0	0		200760	2Q	204887	2Q	CONT.	405647	CONT.
ElementTestandEvaluation												
	SS/CPAF	Boeing/Various	0	0		51796	1/2Q	63720	1/2Q	CONT.	115516	CONT.
LogisticsPlanning,Production andProtection												
LogisticsPlanning,Production andProtection	SS/CPAF	Boeing/Various	0	0		16100	1/2Q	16300	1/2Q	CONT.	32400	CONT.
SubtotalProductDevelop ment			0	0		946985		1094964			2041949	
Remarks												
ThePrimeContractorhastheresponsibilitytobalanceresourcesacrosstheGMDprogramandallocatefundingaccordingtoprogramprogress.ThismayrequirethePrimeContractortoreallocate funding,which wouldchangetheestimatesprovidedinthisR -3document.												

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MDA Exhibit R - 3 RDT & E Project Cost Analysis										Date February 2003		
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment							
II. Support Costs Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Element Engineering & Integration												
	MIPR	TSC/SMDC/AL	0	0		1000	1/2Q	1000	1/2Q	CONT.	2000	CONT.
	MIPR	NSWC/Dahlgren, VA	0	0		4125	1/2Q	4125	1/2Q	CONT.	8250	CONT.
	MIPR	DTRA/Dulles, VA	0	0		1000	1/2Q	1000	1/2Q	CONT.	2000	CONT.
	MIPR	NAIC/Wright Patterson, AFB	0	0		700	1/2Q	700	1/2Q	CONT.	1400	CONT.
	MIPR	SBIRSSPO/LA AFB, CA	0	0		1800	1/2Q	1800	1/2Q	CONT.	3600	CONT.
	MIPR	DTD/GMD /Huntsville, AL	0	0		1870	1/2Q	1870	1/2Q	CONT.	3740	CONT.
	MIPR	GME Engineering Analysis/Huntsville, AL	0	0		1980	1/2Q	1980	1/2Q	CONT.	3960	CONT.
	MIPR	GMD Studies & Analysis/Huntsville, AL	0	0		1700	1/2Q	1700	1/2Q	CONT.	3400	CONT.
	SS/CPFF	CSC/Arlington, VA	0	0		17688	1/2Q	15743	1/2Q	CONT.	33431	CONT.
	MIPR	MIT Lincoln Labs/Cambridge, MA	0	0		815	1/2Q	815	1/2Q	CONT.	1630	CONT.
	MIPR	Photon Labs/Arlington, VA	0	0		700	1/2Q	700	1/2Q	CONT.	1400	CONT.
	SS/CPAF	IDA/Arlington, VA	0	0		250	1/2Q	250	1/2Q	CONT.	500	CONT.
	C/CPAF	Miltec/Huntsville, AL	0	0		600	1/2Q	600	1/2Q	CONT.	1200	CONT.
	MIPR	JNIC/Colorado Springs, CO	0	0		4658	1/2Q	4658	1/2Q	CONT.	9316	CONT.
Upgraded Early Warning Radar (UEWR) Development												
	SS/CPAF	Ga. Tech	0	0		1220	1/2Q	1220	1/2Q	CONT.	2440	CONT.

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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)						R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment						
	C/FP	Mevatech	0	0		9487	1/2Q	8769	1/2Q	CONT.	18256	CONT.
	MIPR	AMCOM	0	0		1620	1/2Q	1620	1/2Q	CONT.	3240	CONT.
	C/CPFF	Xontech	0	0		780	1/2Q	780	1/2Q	CONT.	1560	CONT.
GroundBasedInterceptor (GBI)												
	SS/FP	Davidson/AL	0	0		1192	1/2Q	1192	1/2Q	CONT.	2384	CONT.
	SS/FP	Mevatec/AL	0	0		7894	1/2Q	7894	1/2Q	CONT.	15788	CONT.
	SS/FP	TSI/AL	0	0		7449	1/2Q	6136	1/2Q	CONT.	13585	CONT.
	C/CPFF	Sparta/AL	0	0		1394	1/2Q	1394	1/2Q	CONT.	2788	CONT.
	MIPR	AMCOM/AL	0	0		354	1/2Q	354	1/2Q	CONT.	708	CONT.
	MIPR	USASMDC/AL	0	0		391	1/2Q	391	1/2Q	CONT.	782	CONT.
	MIPR	DOT/ITOP/AL	0	0		231	1/2Q	231	1/2Q	CONT.	462	CONT.
	MIPR	Mitre/DC	0	0		291	1/2Q	291	1/2Q	CONT.	582	CONT.
	MIPR	Misc/Various	0	0		100	1/2Q	125	1/2Q	CONT.	225	CONT.
	Various	Misc/Various	0	0		174	1/2Q	149	1/2Q	CONT.	323	CONT.
	SS/FP	CSC/AL	0	0		6798	1/2Q	6798	1/2Q	CONT.	13596	CONT.
SiteActivation												
	C/CPFF	CSC/AL	0	0		2349	2Q	2350	2Q	CONT.	4699	CONT.
	MIPR	Various	0	0		3104	2Q	3104	2Q	CONT.	6208	CONT.
	MIPR	USACE/Huntsville, AL	0	0		3661	2Q	3661	2Q	CONT.	7322	CONT.
	C/CPFF	CSC/AL	0	0		2420	2Q	987	2Q	CONT.	3407	CONT.
	C/CPFF	L3 Communications/ AL	0	0		1499	2Q	946	2Q	CONT.	2445	CONT.
	MIPR	U.S.ArmyWar College/PA	0	0		1207	2Q	874	2Q	CONT.	2081	CONT.
		Various	0	0		2119	2Q	789	2Q	CONT.	2908	CONT.
	C/CPFF	Mevatech/AL	0	0		822	2Q	822	2Q	CONT.	1644	CONT.
	C/CPFF	CSC/AL	0	0		1573	2Q	751	2Q	CONT.	2324	CONT.
	C/CPFF	CSC/AL	0	0		6472	2Q	7282	2Q	CONT.	13754	CONT.
	C/CPFF	Colsa/AL	0	0		301	2Q	301	2Q	CONT.	602	CONT.
	MIPR	USACE/Huntsville, AL	0	0		2019	2Q	1337	2Q	CONT.	3356	CONT.

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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment						
	C/CPFF	CSC/AL	0	0	610	2Q	610	2Q	CONT.	1220	CONT.
	C/CPFF	L3 Communications/ AL	0	0	1377	2Q	854	2Q	CONT.	2231	CONT.
	MIPR	USASMDC/AL	0	0	4244	2Q	3524	2Q	CONT.	7768	CONT.
	MIPR	USARAK/AK	0	0	3813	2Q	7481	2Q	CONT.	11294	CONT.
		Various	0	0	982	2Q	982	2Q	CONT.	1964	CONT.
ProgramPlanningand Management											
SPTDC	C/CPAF	CSC/DC	0	0	94757	1Q	90254	1Q	CONT.	185011	CONT.
SPTHSV	C/CPAF	CSC/AL	0	0	27394	1/4Q	26052	1/4Q	CONT.	53446	CONT.
TRADOCSystemManager	MIPR	SMDC/AL	0	0	16155	1/4Q	15347	1/4Q	CONT.	31502	CONT.
LogisticsPlanning,Production andProtection											
	C/CPFF	CSC/AL	0	0	1072	3Q	1072	3Q	CONT.	2144	CONT.
	C/CPFF	L3 Communications/ AL	0	0	2584	3Q	2584	3Q	CONT.	5168	CONT.
	C/CPFF	Mevatech/AL	0	0	902	3Q	902	3Q	CONT.	1804	CONT.
	C/CPFF	TSI/AL	0	0	910	3Q	910	3Q	CONT.	1820	CONT.
	C/CPFF	MSAIC	0	0	96	3Q	96	3Q	CONT.	192	CONT.
	MIPR	AMCOM/IMMC	0	0	1625	3Q	1625	3Q	CONT.	3250	CONT.
	MIPR	AMCOM/OGA	0	0	3618	3Q	3618	3Q	CONT.	7236	CONT.
	C/CPFF	Mevatech/AL	0	0	1201	3Q	1201	3Q	CONT.	2402	CONT.
	C/CPFF	SYTech	0	0	3349	3Q	3349	3Q	CONT.	6698	CONT.
	MIPR	Colsa/AL	0	0	65	3Q	65	3Q	CONT.	130	CONT.
	MIPR	COE/VA	0	0	41187	3Q	26455	3Q	CONT.	67642	CONT.
	MIPR	DTRA/VA	0	0	275	3Q	275	3Q	CONT.	550	CONT.
	MIPR	NSA/AL	0	0	6	3Q	6	3Q	CONT.	12	CONT.
	MIPR	USACE/AL	0	0	5353	3Q	5353	3Q	CONT.	10706	CONT.
	MIPR	USASMDC/AL	0	0	500	3Q	500	3Q	CONT.	1000	CONT.
	MIPR	USASMDC	0	0	609	3Q	609	3Q	CONT.	1218	CONT.
	MIPR	SchrieverAFB	0	0	400	3Q	400	3Q	CONT.	800	CONT.
	MIPR	NSA	0	0	21	3Q	21	3Q	CONT.	42	CONT.

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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	MIPR	Schriever AFB	0	0		59	3Q	59	3Q	CONT.	118	CONT.
	MIPR	CST	0	0		150	3Q	150	3Q	CONT.	300	CONT.
	MIPR	USASMDC/AL	0	0		1376	3Q	1376	3Q	CONT.	2752	CONT.
	Other	Various	0	0		2354	2Q	2236	2Q	CONT.	4590	CONT.
Production	MIPR	AMRDEC/AL	0	0		4028	2Q	3948	2Q	CONT.	7976	CONT.
	C/CPFF	Various/AL	0	0		2664	2Q	2410	2Q	CONT.	5074	CONT.
Base Support and Real Property	MIPR	USASMDC/AL	0	0		144700	1Q	201819	1Q	CONT.	346519	CONT.
Subtotal Support Costs			0	0		474243		503632			977875	

Remarks

The Prime Contractor has the responsibility to balance resources across the GMD program and allocate funding according to program progress. This may require the Prime Contractor to re-allocate funding, which would change the estimates provided in this R-3 document.

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

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Element Test and Evaluation												
Combined Test Force	C/CPAF	Colsa/AL	0	0		6021	1/2Q	6022	1/2Q	CONT.	12043	CONT.
	C/CPAF	ASGI/AL	0	0		406	1/2Q	406	1/2Q	CONT.	812	CONT.
	SS/CPAF	Boeing/Various	0	0		1800	1/2Q	1800	1/2Q	CONT.	3600	CONT.
	MIPR	Kirtland AFB/NM	0	0		180	1/2Q	180	1/2Q	CONT.	360	CONT.
	MIPR	USAKA/AK	0	0		18061	1/2Q	18061	1/2Q	CONT.	36122	CONT.
	MIPR	Sandia/NM	0	0		100	1/2Q	100	1/2Q	CONT.	200	CONT.
	MIPR	USASMDC/AL	0	0		2465	1/2Q	2465	1/2Q	CONT.	4930	CONT.
	C/TM	JNTE/CO	0	0		1489	1/2Q	1489	1/2Q	CONT.	2978	CONT.
	MIPR	CSC/AL	0	0		895	1/2Q	895	1/2Q	CONT.	1790	CONT.
	C/TM	Mevatech/AL	0	0		4329	1/2Q	4329	1/2Q	CONT.	8658	CONT.
	C/TM	CSC/AL	0	0		1781	1/2Q	1781	1/2Q	CONT.	3562	CONT.
	C/CPAF	Aeromet/Various	0	0		922	1/2Q	922	1/2Q	CONT.	1844	CONT.
	MIPR	SBIRSSPO	0	0		488	1/2Q	488	1/2Q	CONT.	976	CONT.

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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment							
	MIPR	AMCOM/AL	0	0		1382	1/2Q	1382	1/2Q	CONT.	2764	CONT.
	MIPR	USARSPACE/AL	0	0		110	1/2Q	110	1/2Q	CONT.	220	CONT.
	MIPR	EglinAAFB/FL	0	0		120	1/2Q	120	1/2Q	CONT.	240	CONT.
	MIPR	PetersonAFB/CO	0	0		278	1/2Q	278	1/2Q	CONT.	556	CONT.
	MIPR	OGA`s/Variou	0	0		488	1/2Q	488	1/2Q	CONT.	976	CONT.
	C/CPFF	IEC Electronics/Variou	0	0		2455	1/2Q	2455	1/2Q	CONT.	4910	CONT.
	C/TM	CAS/Variou	0	0		880	1/2Q	880	1/2Q	CONT.	1760	CONT.
	MIPR	MITLLNL/MA	0	0		3955	1/2Q	3955	1/2Q	CONT.	7910	CONT.
	C/CPFF	ITT/Variou	0	0		1984	1/2Q	1984	1/2Q	CONT.	3968	CONT.
	MIPR	AEDC/TN	0	0		20	1/2Q	20	1/2Q	CONT.	40	CONT.
	MIPR	Sandia/NM	0	0		2853	1/2Q	2853	1/2Q	CONT.	5706	CONT.
	C/Other	Mevatech/AL	0	0		80	1/2Q	80	1/2Q	CONT.	160	CONT.
	MIPR	HAFB/MA	0	0		896	1/2Q	896	1/2Q	CONT.	1792	CONT.
	MIPR	SMDC/AL	0	0		74	1/2Q	74	1/2Q	CONT.	148	CONT.
	Other	TSI/AL	0	0		804	1/2Q	804	1/2Q	CONT.	1608	CONT.
	C/CPFF	VRC/AL	0	0		2362	1/2Q	2362	1/2Q	CONT.	4724	CONT.
	C/CPFF	Colsa/AL	0	0		336	1/2Q	336	1/2Q	CONT.	672	CONT.
	MIPR	SLAD/AL	0	0		140	1/2Q	140	1/2Q	CONT.	280	CONT.
	C/CPFF	CEI/AL	0	0		518	1Q	518	1Q	CONT.	1036	CONT.
	C/CPFF	TRW/AL	0	0		1866	1/2Q	1866	1/2Q	CONT.	3732	CONT.
	MIPR	VariousOGA`s	0	0		1089	1/2Q	1089	1/2Q	CONT.	2178	CONT.
	C/CPFF	SAIC/Variou	0	0		756	1/2Q	756	1/2Q	CONT.	1512	CONT.
	MIPR	AEC/Variou	0	0		630	1/2Q	630	1/2Q	CONT.	1260	CONT.
	MIPR	Sandia/NM	0	0		36065	1/2Q	28863	1/2Q	CONT.	64928	CONT.
	MIPR	USASMDC/AL	0	0		7051	1/2Q	7051	1/2Q	CONT.	14102	CONT.
	C/CPFF	SYTech/AL	0	0		1896	1/2Q	1896	1/2Q	CONT.	3792	CONT.
	MIPR	SMC/AL	0	0		28891	1Q	28891	1Q	CONT.	57782	CONT.
	MIPR	OGA`s/Variou	0	0		4340	1/2Q	4340	1/2Q	CONT.	8680	CONT.
	MIPR	Vandenberg AFB/CA	0	0		2765	1/2Q	2765	1/2Q	CONT.	5530	CONT.
TTEC	C/CPFF	SYTech/AL	0	0		3121	1/2Q	2812	1/2Q	CONT.	5933	CONT.
	MIPR	SED/AL	0	0		671	1/2Q	671	1/2Q	CONT.	1342	CONT.

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TTEC	MIPR	STRICOM/FL	0	0	488	1/2Q	488	1/2Q	CONT.	976	CONT.	
	Various	Various/Various	0	0	2920	1/2Q	2896	1/2Q	CONT.	5816	CONT.	
Subtotal Test and Evaluation			0	0	151221		143687			294908		
Remarks												
The Prime Contractor has the responsibility to balance resources across the GMD program and allocate funding according to program progress. This may require the Prime Contractor to reallocate funding, which would change the estimates provided in this R -3 document.												
IV. Management Services Cost (\$ in Thousands)												
Cost Categories :	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
GMD Fire Control & Comms												
	MIPR	NSWC/MD	0	0		3619	2Q	2760	2Q	CONT.	6379	CONT.
	C/CPAF	TRW/MA	0	0		3916	2Q	3916	2Q	CONT.	7832	CONT.
	FFRDC	Mitre/IDA/Various	0	0		1147	2Q	1147	2Q	CONT.	2294	CONT.
	C/CPAF	Sparta/AL	0	0		3053	2Q	3053	2Q	CONT.	6106	CONT.
	C/CPAF	NRC/Various	0	0		688	2Q	688	2Q	CONT.	1376	CONT.
	C/BPA	QRI/Various	0	0		874	2Q	874	2Q	CONT.	1748	CONT.
	C/CPAF	CSC/AL	0	0		1767	2Q	1767	2Q	CONT.	3534	CONT.
	C/CPAF	Vanguard Research/AL	0	0		84	2Q	84	2Q	CONT.	168	CONT.
	MIPR	USAFESC/MA	0	0		69	2Q	69	2Q	CONT.	138	CONT.
	MIPR	ARL/CA	0	0		247	2Q	247	2Q	CONT.	494	CONT.
	C/CPAF	Mevatech/AL	0	0		688	2Q	688	2Q	CONT.	1376	CONT.
	C/CPAF	TBD	0	0		707	2Q	707	2Q	CONT.	1414	CONT.
	C/CPAF	TSI	0	0		201	2Q	201	2Q	CONT.	402	CONT.
	MIPR	ArgonneNL	0	0		140	2Q	140	2Q	CONT.	280	CONT.
	Various	Miscellaneous	0	0		8	2Q	8	2Q	CONT.	16	CONT.
XBand Radar Technology Development												
	FFRDC	MIT Lincoln Lab/MA	0	0		1265	1/2Q	1265	1/2Q	CONT.	2530	CONT.

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MDAExhibitR -3RDT&EProjectCostAnalysis										Date February2003		
APPROPRIATION/BUDGETACTIVITY					R-1NOMENCLATURE							
4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					0603882CBallisticMissileDefenseMidcourseDefenseSegment							
UpgradedEarlyWarning Radar(UEWR)Development												
	FFRDC	MITLincoln Lab/MA	0	0		300	2Q	301	2Q	CONT.	601	CONT.
	FFRDC	Mitre/Various	0	0		9547	1/3Q	8423	1/3Q	CONT.	17970	CONT.
	C/CPFF	SECOM/Various	0	0		3757	1/3Q	4140	1/3Q	CONT.	7897	CONT.
	C/CPFF	Tecolote/Various	0	0		272	1/3Q	280	1/3Q	CONT.	552	CONT.
	C/CPFF	ESC/Hanscom/Vari ous	0	0		570	1/4Q	580	1/4Q	CONT.	1150	CONT.
SubtotalManagementServices			0	0		32919		31338			64257	
Remarks												
ThePrimeContractorhastheresponsibilitytobalanceresourcesacrosstheGMDprogramandallocatefundingaccordingtoprogramprogress. ThismayrequirethePrimeContractortoreallocate funding,whichwouldchangetheestimatesprovidedinthisR -3document.												
ProjectTotalCost			0	0		1605368		1773621			3378989	
Remarks												
ThePrimeContractorhastheresponsibilitytobalanceresources acrossstheGMDprogramandallocatefundingaccordingtoprogramprogress.This mayrequirethePrimeContractortoreallocate funding,whichwouldchangetheestimatesprovidedinthisR -3document.												

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MDAExhibitR -4AScheduleDetail	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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ScheduleProfile	FY200 2	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
Milestones								
DecisionPoints	3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q
IntegratedFlightTest								
IFT07	1Q							
IFT08	2Q							
IFT09		1Q						
IFT10		1Q						
IFT13A -BoosterVerification		3Q						
IFT13B -BoosterVerification		4Q						
IFT14			1Q					
IFT15			3Q					
IFT17				2Q				
IFT18				4Q				
IFT21					2Q			
IFT22					4Q			
IFT23/24(MSE)						2Q		
IFT26						3Q		
BoosterVeri ficationTest								
BV3	1Q							
BV5		2Q						
BV6		3Q						

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
0908 Ground -Based Midcourse Defense (GMD) Test Bed Block 2008	0	0	0	0	0	0	878477	877297
RDT&E Articles Qty	0	0	0	0	0	0	3	3

A. Mission Description and Budget Item Justification

The Ground -based Midcourse Defense (GMD) System Element of the Midcourse Defense Segment (MDS) consists of a series of block development efforts supporting the midcourse descent phase of the BMDS. The Block 2004 consists of the early development and construction of the initial GMD operational capability in part of the BMDS Test Bed (initiated under Project 3011). Block 2006 (Project 0808) continues the development of capabilities to detect, track, intercept, and defeat ballistic missile threats to the U.S. during the midcourse phase of flight as well as GMD improvements to the BMDS Test Bed (initiated under Project 3012, GMDD Development and Test Bed Upgrades). GMD development efforts continue with Block 2008 (Project 0908) and consist of sustaining engineering and spiral upgrades to the GMD components of the Block 2004/06 BMDS Test Bed. These efforts will include Preplanned Product Improvements (P3I) to GMD components.

Project 0808, Ground -Based Midcourse Defense (GMD) Block 2006 and Project 0908, Ground -Based Midcourse Defense (GMD) Block 2008 provide hardware, planning, missions support and execution of the GMD test program. They also provide a broad range of development activities and technologies and components for the ground -based element of Ballistic Missile Defense System (BMDS). This development effort will mature key technologies in logical stages to allow for an enhanced BMDS Test Bed (using operationally representative hardware and software) and a continuing program to develop and demonstrate a wider range of technologies supporting a ground -based "Hit -to-Kill" capability. These projects require infrastructure support for the GMD program at Redstone Arsenal, Alabama.

The GMDD development program provides an integrated development and test program of more capable interceptors (both launch and kill vehicles), targets, sensors, and Fire Control and Communication systems and infrastructure.

B. Accomplishments/Planned Program

Funding in this project is not programmed until FY2008.

C. Other Program Funding Summary

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603869C Meads Concepts -Dem/Val	0	114781	0	0	0	0	0	0		
PE0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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PE0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603883C Ballistic Missile Defense Boost Defense Segment	583463	718036	626264	653612	755163	665772	477109	354346		
PE0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0604861C Theater High -Altitude Area Defense System -TMD -EMD	818632	888323	0	0	0	0	0	0		
PE0604865C Patriot PAC -3 Theater Missile Defense Acquisition -EMD	130630	176155	0	0	0	0	0	0		
PE0604867C Navy Area Theater Missile Defense -EMD	96121	0	0	0	0	0	0	0		
PE0605502C Sma II Business Innovative Research -MDA	145102	0	0	0	0	0	0	0		
PE0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		
PE0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		

D. Acquisition Strategy

GMD 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 GMD part of the BMD ST Test Bed NLT 4th Quarter FY 2004 as an early BMD ST 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. The development approach has been enhanced to include (1) adding test infrastructure and improving test management to allow more operationally challenging representative flight tests and providing for increased testing against more challenging targets, and (2) increasing the fidelity of the project simulations.

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MDAExhibitR -4AScheduleDetail						Date February2003		
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)				R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment				
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ScheduleProfile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2 009
IntegratedFlightTest								
IFT29							1Q	
IFT30								1Q

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (A CD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
3020 Sea -Based Midcourse Defense (SMD)	446475	384312	0	0	0	0	0	0
RDT&E Articles Qty	4	9	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Consistent with the Missile Defense Agency (MDA) Block Management framework, beginning in FY2004, Budget Project 3020 will be divided into the following Budget Projects:

- 0709 -Aegis BMD Block 2004
- 0809 -Aegis BMD Block 2006
- 0909 -Aegis BMD Block 2008
- 0009 -Aegis BMD Block 2010
- 0402 -Japan Cooperative Research

The Aegis Ballistic Missile Defense (BMD) Block 2004 program will be technically capable of initial defensive operations:

- Defeats unitary and separating targets (Short Range Ballistic Missiles and Medium Range Ballistic Missiles (SRBMs and MRBMs)) with Aegis BMD configured cruisers and STANDARD Missile -3 (SM -3) guided missiles.
- Uses a BMD modified Aegis Weapon System (AWS) and SM -3 guided missile evolved from the Aegis Light -weight Exo -atmospheric Projectile (LEAP) Intercept (ALI) successfully demonstrated in flight tests.
- Provides early capability and Block IR research and development (R&D) missiles.
- Provides the potential for early, but limited, BMD capabilities.
- Provides for potential Block IR & D missiles.
- Provides Inter -Continental Ballistic Missile (ICBM) surveillance and track data through the Ballistic Missile Defense System (BMDS) to the Ground -based Missile Defense (GMD) system for radar cueing and development of early fire control information.
- Provides expanded battlespace through the use of remote data provided by Joint Tactical Information Data System (JTIDS).
- Provides the ability to rapidly reconfigure BMD ships into a fleet air defense capability.
- Provides ship self -defense capability with all weapons.
- Conducts a Short Range Ballistic Missile (SRBM) low exo -atmospheric experiment to test the ability to expand the Aegis BMD element engagement volume to lower engagement altitudes.
- Provides the flexibility to use either the SM -3 Block I or SM -3 Block IA missiles.
- Performs an operational assessment.
- Modifies Aegis destroyers for prototype GMD surveillance and tracking capability.
- Delivers prototype surveillance and tracking destroyers in FY2003.
- Modifies Aegis cruisers with the Block 2004 capability.
- Modifies Aegis destroyers with GMD surveillance and tracking capability.

Aegis Ballistic Missile Defense (BMD) Block 2006 will evolve (through spiral capability driven development) from the Block 2004 Aegis Weapon System (AWS) with development focused on improved prototype radar discrimination:

- Defeats unitary and separating targets (Short Range Ballistic Missiles (SRBM), Medium Range Ballistic Missiles (MRBM), and Intermediate Range Ballistic Missiles (IRBM) with Aegis BMD configured cruisers, destroyers and STANDARD Missile -3 (SM -3) guided missiles.
- Provides the potential for initial defensive operations use.

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (A CD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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- Provides improved battlespace to the Block 2004 capability through changes to the Concepts of Operations (CONOPS) such as Boost Phase engagements.
- Provides improved Inter-Continental Ballistic Missile (ICBM) surveillance and track data through the BMD to the Ground-based Midcourse Defense (GMD) system for radar cueing and development of early fire control information.
- Supports the continued development of the Aegis discrimination Test Bed for development of new radar discrimination algorithms such as feature extraction algorithms.
- Demonstrates improved discrimination with synthetic widebandwidth AN/SPY-1 Radar Test Bed modifications both ashore and at sea.
- Uses either the SM-3 Block I or SM-3 Block I A missiles.
- Allows for international participation.
- Performs an operational assessment.
- Modifies additional Aegis destroyers with Block 2004 GMD surveillance tracking capability to a BMD engagement capability.
- Provides the ability to rapidly reconfigure BMD ships into a fleet air defense capability.
- Provides ships with a self-defense capability with all weapons.

The U.S./Japan Cooperative Research (JCR) will continue per the U.S. Department of Defense (DoD)/Japan Defense Agency (JDA) Memorandum of Agreements signed in 1999 to conduct cooperative research in Ballistic Missile Defense:

- Focusing research on four components of the SM-3 guided missile: sensor, advanced kinetic warhead, second stage propulsion, and lightweight nose cone.
- Conduct flight tests in FY2005 and FY2006 of the lightweight nose cone in Joint Control Test Vehicle -1 (JCTV -1) and Joint Flight Mission -1 (JFM -1).

B. Accomplishments/Planned Program

	FY2002	FY2003	FY2004	FY2005
Aegis BMD Block 04	412620	366812	0	0
RDT&E Articles (Quantity)	4	9	0	0

FY2002 Accomplishments:

RDT&E Articles: SM-3 Guided Missiles (2), Targets (2)

- Conducted two Block 2004 In Process Reviews (IPRs).
- Conducted Block 2004 System Capability Review (SCR).
- Conducted System level performance assessment of Block 2004 capabilities.
- Completed two successful Monolithic Solid Divert and Attitude Control System (SDACS) Attitude Control Assembly (ACA) tests.
- Completed Critical Design Review (CDR) for the sealed seeker design.
- Completed Preliminary Design Review (PDR) for SM-3 Infra-red (IR) discrimination.
- Conducted Third Stage Rocket Motor (TSRM) Design Verification Testing.
- Completed TSRM -1 ground test to validate lessons learned from Aegis LEAP Intercept (ALI) flight missions.
- Conducted Developmental Unit (DU) -5 Monolithic ACA and tube Main Thruster Assembly (MTA) test.
- Conducted FM-2 Kinetic Warhead (KW) characterization flight test and exceed objectives by hitting the target.
- Completed ALI flight test exit criteria after successfully completing FM-3 flight test with an intercept of the target.
- Conducted Quick Reaction Launch Vehicle (QRLV) -2 tracking mission during Alaskan Command (ALCOM) Northern Edge Exercises.
- Conducted System Integration Test (SIT) II tracking missions.

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MDA Exhibit R -2 ARDT & E Project Justification		Date February 2003
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (A CD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment	
<p>-Conducted Pacific Blitz and Target Complex Generator Test System (TCGTS). -Conducted 3 full -scale lethality led tests. -Participated in Ground -based Midcourse Defense (GMD) Integrated Flight Test -9 (IFT9) flight mission, using an Aegis Destroyer to provide target tracking data to GMD, and SM -3 KWIR Seeker Captive Carry Test Bed in support of BMDS integration. -Conducted interoperability test with other BMD elements. -Initiated performance studies to implement ship system radar and weapons control system changes to support the low exo -atmospheric intercept guidance control changes. -Initiated performance studies to optimize SM -3 third stage guidance control and rocket motor multi -pulse management to support the low -altitude intercept. -Initiated modifications to the models and simulation tools to support the Aegis Weapon System and SM -3 missile changes for the low -altitude intercept capability.</p> <p>FY 2003 Planned Accomplishments:</p> <p>RDT & E Articles: SM -3 Guided Missiles (3), Targets (3), Prototype Surveillance & Tracking Destroyers (3)</p> <p>-Continue engineering development of the Block 2004 Aegis BMD System. -Conduct Block 2004 Design Disclosure Review (DDR). -Conduct Block 2004 system Critical Design Review (CDR) and begin coded development of Aegis Weapon System (AWS). -Verify shipboard system interfaces with ETEDDS. -Conduct All -Up -Round level CDRs for SM -3 Block I. -Continue Infra -red (IR) discrimination algorithm development. -Complete aim point shift capability development. -Complete Monolithic SDACS design studies. -Continue Radio Frequency (RF)/IR discrimination guidance algorithm implementation. -Continue TSRM obsolete material replacement development efforts. -Continue and complete SM -3 Block 2004 SDACS development. engineering tests for multiple pulse configuration. -Continue and complete SM -3 nose cone structural integrity tests. -Initiate SM -3 All -Up -Round level obsolete material replacement development effort. -Verify sealed seeker design. -Release KW initial software build with discrimination features. -Initiate IR discrimination studies. -Conduct Monolithic SDACS ground and qualification tests. -Conduct TSRM Design Verification Test. -Conducted FM -4 flight tests successfully hitting the target. -Conduct FM -5 and FM -6 flight tests to verify Block 2004 with KW multi -pulse SDACS capability and lethal aim point shift in an ascent phase scenario. -Participated in GMD IFT 10 flight mission, using an Aegis Destroyer to provide target tracking data to GMD, and SM -3 KWIR Seeker Captive Carry Test Bed in support of BMDS integration. -Participate in GMD flight mission on RCF -1. -Conduct lethality and post -intercept analysis. -Continue to test interoperability with other BMD elements. -Acquire Risk Reduction Flight (RRF) and FM -7 targets. -Acquire targets for Pacific Blitz 04. -Continue performance studies and initiated development of ship system changes to implement the low -altitude intercept guidance control changes.</p>		

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (A CD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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-Continue performance studies and initiated development of SM -3 Third Stage Guidance Control and Rocket Motor Multi -pulse management to support the low-altitude intercept.
 -Continue modifications to the models and simulation tool to support the Weapon System and SM -3 Missile changes for the low -altitude intercept capability.
 -Conduct Vertical Launching System (VLS) PDR and CDR.
 -Initiate modification for SAASMCrypto VLS.
 -Conduct VLS canister thermal trade studies.

	FY2002	FY2003	FY2004	FY2005
Aegis BMD Block 06	33855	17500	0	0
RDT&E Articles (Quantity)	0	0	0	0

FY2002 Accomplishments:
 -Developed the Block 2006 Program Plan.
 -Conducted AN/SPY -1 Radar Ballistic Missile Defense (BMD) Signal Processor (BSP) System Design Review (SDR).
 -Continued development and system engineering support for the four U.S./Japan Cooperative Research (JCR) components.
 -Completed nose cone Preliminary Design Review (PDR) supporting integration of Japan Defense Agency (JDA) developed nose cone on Joint Control Test Vehicle -1 (JCTV -1) and Joint Flight Mission-1 (JFM -1).
 -Completed 21" missile components PDR supporting JDA development of second stage propulsion , Quantum Well Infrared Photodetector (QWIP) seeker, and light weight nose cone of an advanced SM-3.
 -Continued design and development of the DoD two -color seeker toward Captive Carry.
 -Continued design and development of Divert and Attitude Control System (DACS) alternatives.
 -Performed system engineering support for JDA design and development of second stage propulsion, Japan QWIP seeker, and light weight nose cone.

FY2003 Planned Accomplishments:
 -Complete inputs for MDA Engineering Review Boards (ERB) for Block 2006.
 -Complete Block 2006 capability assessment.
 -Continue use of KWIR Seeker Captive Carry and AN/SPY -1 Radar High Range Resolution (HRR) Test Beds.
 -Continue fabrication of AN/SPY -1 BSP Advanced Developmental Model (ADM).
 -Continue Infrared (IR) discrimination advance studies for Block 2006 capabilities.
 -Continued development and system engineering support for the four U.S./JCR components.
 -Initiate procurement of test articles and ship modifications for JCTV -1 and JFM -1.
 -Conduct PDR for Ship system and Vertical Launching System (VLS) modifications.
 -Conduct CDR supporting integration of JDA developed nose cone on JCTV -1 and JFM -1.
 -Complete ground testing in the U.S. of the Japan QWIP and DoD Mercury Cadmium Telluride (MCT) two -color seekers.
 -Continue system engineering support for JDA design and development of second stage propulsion, QWIP seeker, and light weight nose cone.
 -Complete JCR nose cone wind tunnel tests.

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MDA Exhibit R -2 ARDT&E Project Justification							Date February 2003			
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (A CD&P)					R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment					
C. Other Program Funding Summary										
	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603883C Ballistic Missile Defense Boost Defense Segment	583463	718036	626264	653612	755163	665772	477109	354346		
PE0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		
PE0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0604861C Theater High -Altitude Area Defense System -TMD -EMD	818632	888323	0	0	0	0	0	0		
PE0604865C Patriot PAC -3 Theater Missile Defense Acquisition -EMD	130630	176155	0	0	0	0	0	0		
PE0604867C Navy Area Theater Missile Defense -EMD	96121	0	0	0	0	0	0	0		
PE0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE0605502C Small Business Innovative Research -MDA	145102	0	0	0	0	0	0	0		
PE0901598C Management Headquarters -MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE0603869C Meads Concepts -Dem/Val	0	114781	0	0	0	0	0	0		

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (A CD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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D. Acquisition Strategy

The Aegis BMD element will follow the MDA'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 Aegis BMD element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance the BMD capabilities. The best approach (competitive or selected source) will be determined after considering all the technical and management aspects of the program. Current development activities supporting Aegis BMD Block 04 could be used to provide a limited capability to protect deployed U.S. and allied forces.

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MDA Exhibit R - 3RDT & E Project Cost Analysis								Date February 2003				
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment							
I. Product Development Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Aegis BMDBlock04												
	SS/CPFF	JHU/APL/MD	13085	7817	2Q					CONT.	20902	TBD
	SS/CPAF	Lockheed Martin/NJ	115741	80499	1/2Q					CONT.	196240	TBD
	SS/FFRD C	MIT/LL/MA	5997	6200	2Q					CONT.	12197	TBD
	MIPR	NSWC/CL/CA	2055	600	1Q					CONT.	2655	TBD
	MIPR	NRL/DC	2576	600	1Q					CONT.	3176	TBD
	MIPR	NSWC/DD/VA	8219	12056	1Q					CONT.	20275	TBD
	MIPR	NSWC/PHD/CA	3584	5802	1Q					CONT.	9386	TBD
	SS/CPAF	Raytheon/AZ	151653	137447	1/2Q					CONT.	289100	TBD
	C/CPFF	PSC/VA	1700	0	1/2Q					CONT.	1700	TBD
	SS/CPAF	United Defense/MN	1382	2228	1/2Q					CONT.	3610	TBD
	Various	Various	4167	7583	1/2Q					CONT.	11750	TBD
	SS/CPFF	Mitre/NJ	0	980	2Q					CONT.	980	TBD
	C/CPFF	Northrup Grumman/VA	0	400	2Q					CONT.	400	TBD
	MIPR	NSWC/CD/MD	0	1000	1Q					CONT.	1000	TBD
	MIPR	NSWC/IH/MD	0	1088	1Q					CONT.	1088	TBD
	MIPR	WSMR/NM	0	1400	1Q					CONT.	1400	TBD
Aegis BMDBlock06												
	C/CPAF	United Defense/MN	585	0						CONT.	585	CONT.
	MIPR	NSWC/DD/VA	208	0						CONT.	208	CONT.
	SS/CPFF	JHU/APL/MD	430	0						CONT.	430	CONT.
	SS/CPAF	Lockheed Martin/NJ	3050	0						CONT.	3050	CONT.
	SS/CPAF	Raytheon/AZ	26800	0						CONT.	26800	CONT.
	Various	Various	653	0						CONT.	653	CONT.
Subtotal Product Development			341885	265700		0		0			607585	
Remarks												

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MDA Exhibit R - 3RDT & E Project Cost Analysis								Date February 2003				
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)					R-INOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment							
II. Support Costs Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Aegis BMD Block 04												
	MIPR	NSWC/DD/VA	10568	2411	1Q					CONT.	12979	TBD
	SS/CPFF	JHU/APL/MD	8348	2700	2Q					CONT.	11048	TBD
	C/CPAF	COMP/VA	2417	0						CONT.	2417	TBD
	C/CPAF	CREE/VA	2400	0						CONT.	2400	TBD
	SS/CPFF	BMPCO/MD	1170	0						CONT.	1170	TBD
	C/CPFF	MEI/VA	1250	0						CONT.	1250	TBD
	FFRDC	MIT/LL/MA	7040	2250	2Q					CONT.	9290	TBD
	MIPR	NSWC/CD/VA	2919	0						CONT.	2919	TBD
	SS/CPFF	SEG/VA	3740	1750	2Q					CONT.	5490	TBD
	MIPR	NSWC/PHD/CA	2932	0						CONT.	2932	TBD
	SS/CPAF	Lockheed Martin/NJ	0	1200	1/2Q					CONT.	1200	TBD
	Various	Various	6635	1389	1/2Q					CONT.	8024	TBD
Aegis BMD Block 06												
	MIPR	NSWC/DD/VA	622	873	1Q					CONT.	1495	CONT.
	SS/CPFF	HU/APL/MD	1289	850	2Q					CONT.	2139	CONT.
	SS/CPAF	Raytheon/AZ	0	1000	1/2Q					CONT.	1000	TBD
	SS/CPAF	Lockheed Martin/NJ	0	750	1/2Q					CONT.	750	TBD
	Various	Various	218	1527	1/2Q					CONT.	1745	TBD
Subtotal Support Costs			51548	16700		0		0			68248	
Remarks												

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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III. Test and Evaluation Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Aegis BMD Block 04												
	C/CPFF	HTS/HI	1175	2320	2Q					CONT.	3495	TBD
	SS/CPFF	JHU/APL/MD	2870	4300	1Q					CONT.	7170	TBD
	MIPR	NAWC/PM/CA	1987	1980	1Q					CONT.	3967	TBD
	MIPR	NSWC/DD/VA	5118	7278	1Q					CONT.	12396	TBD
	MIPR	NSWC/PHD/CA	3677	3691	1Q					CONT.	7368	TBD
	MIPR	SMDC/AL	9245	10546	2Q					CONT.	19791	TBD
	MIPR	CINCPACFLT/HI	1024	0						CONT.	1024	TBD
	MIPR	PMRF/HI	2869	5090	1Q					CONT.	7959	TBD
	Various	Various	3639	7895	1Q					CONT.	11534	TBD
Subtotal Test and Evaluation			31604	43100		0		0			74704	

Remarks

IV. Management Services Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Aegis BMD Block 04												
	C/CPFF	PCI/VA	1600	0	2Q					CONT.	1600	TBD
	C/CPFF	Anteon/VA	10336	25000	1/2Q					CONT.	35336	TBD
	C/CPAF	BAE/VA	1615	0	2Q					CONT.	1615	TBD
	C/CPFF	Jaycor/VA	1141	0	1Q					CONT.	1141	TBD
	C/CPAF	Logiccon/VA	1435	0	1Q					CONT.	1435	TBD
	MIPR	NAVSEA/DC	3400	9000	1Q					CONT.	12400	TBD
	SS/CPFF	JHU/APL/MD	1128	1500	2Q					CONT.	2628	TBD
	MIPR	NSWC/DD/VA	783	1000	1Q					CONT.	1783	TBD
	SS/CPFF	Paradigm Technologies/VA	0	5000	2Q					CONT.	5000	TBD

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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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	SS/CPAF	Lockheed Martin/NJ	0	1000	2Q					CONT.	1000	TBD
	SS/CPAF	Raytheon/AZ	0	1200	2Q					CONT.	1200	TBD
	Other	MDA/VA	0	11487	1/3Q					CONT.	11487	TBD
	Various	Various	0	3625	1/2Q					CONT.	3625	TBD
SubtotalManagementServices			21438	58812		0		0			80250	

Remarks

ProjectTotalCost			446475	384312		0		0			830787	
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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FiscalYear	2002				2003				2004				2005				2006				2007				2008				2009							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
TestingMilestones																																				
MonolithicDACSFlightQualification								▲																												
MonolithicDACSMDU1					▲																															
MonolithicDACSMDU2						▲																														
RCF1												▲																								
ThirdStageQualification												▲																								
Deliveries																																				
AWS/SM-3FM-5Configuration								▲																												
AWS/SM-3FM-6Configuration												▲																								
Surveillance&TrackComputerProgram 1.2												▲																								
IntegratedFlightTest																																				
IFT10					▲																															
DevelopmentMilestones																																				
AWSSurveillance&TrackUpgrades																																				
Block04CDRReport												▲																								
NoseconeCDR								▲																												

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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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FiscalYear	2002				2003				2004				2005				2006				2007				2008				2009							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
DevelopmentMilestones																																				
SM-3BlockI/IACDR							▲																													
ShipSystemPDR							▲																													
TSCR					▲																															
VLSCDR											▲																									
VLSPDR							▲																													
FlightTests																																				
FM4					▲																															
FM6																																				
FM-5							▲				▲																									
OffRampDeliveries/Ships																																				
TestDDGs											▲																									

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MDAExhibitR -4AScheduleDetail						Date February2003		
APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)				R-INOMENCL ATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment				
ScheduleProfile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
TestingMilestones								
MonolithicDACSFlyQualification		3Q						
MonolithicDACSM DU1		1Q						
MonolithicDACSM DU2		2Q						
RCF1		4Q						
ThirdStageQualification		4Q						
Deliveries								
AWS/SM -3FM -5Configuration		3Q						
AWS/SM -3FM -6Configuration		4Q						
Surveillance&TrackComputerProgram1.2		4Q						
IntegratedFlightTest								
IFT10		1Q						
DevelopmentMilestones								
AWSSurveillance&TrackUpgrades		1Q-4Q						
Block04CDRReport		4Q						
NoseconeCDR		3Q						
SM -3BlockI/IACDR		3Q						
ShipSystemPDR		3Q						
TSCR		1Q						
VLSCDR		4Q						
V LSPDR		2Q						
FlightTests								
FM4		1Q						
FM6		4Q						
FM -5		3Q						
OffRampDeliveries/Ships								
TestDDGs		4Q						

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-INOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
0709 AEGIS Ballistic Missile Defense Block 2004	0	0	648306	893600	97725	0	0	0
RDT&E Articles Qty	0	0	10	17	1	0	0	0

A. Mission Description and Budget Item Justification

This Budget Project was previously captured in Project 3020 in FY2002 and FY2003.

The Aegis Ballistic Missile Defense (BMD) Block 2004 program will be technically capable of initial defensive operations:

- Defeat unitary and separating targets (Short Range Ballistic Missiles and Medium Range Ballistic Missiles (SRBMs and MRBMs)) with Aegis BMD configured cruisers and STANDARD Missile - 3 (SM -3) guided missiles.
- Use a BMD modified Aegis Weapon System (AWS) and SM -3 guided missile evolved from the Aegis Light -weight Exo-atmospheric Projectile (LEAP) Intercept (ALI) successfully demonstrated in flight tests.
- Provide early capability and Block I research and development (R&D) missiles.
- Provide the potential for early, but limited, BMD capabilities with emergency capability systems.
- Provide for potential Block IR&D missiles.
- Provide Inter-Continental Ballistic Missile (ICBM) surveillance and track data through the Ballistic Missile Defense System (BMDS) to the Ground-based Missile Defense (GMD) system for radar cueing and development of early fire control information.
- Provide expanded battlespace through the use of remote data provided by Joint Tactical Information Data System (JTIDS).
- Provide the ability to rapidly reconfigure BMD ships into a fleet air defense capability.
- Provide ship self-defense capability with all weapons.
- Conduct a Short Range Ballistic Missile (SRBM) low exo-atmospheric experiment to test the ability to expand the Aegis BMD element engagement volume to lower engagement altitudes.
- Provide the flexibility to use either the SM -3 Block I or SM -3 Block I A missiles.
- Perform an operational assessment.
- Modify Aegis destroyers for prototype GMD surveillance and tracking capability.
- Deliver prototype surveillance and tracking destroyers in FY2003.
- Modify Aegis cruisers with the Block 2004 capability.
- Modify Aegis destroyers with GMD surveillance and tracking capability.

B. Accomplishments/Planned Program

	FY2002	FY2003	FY2004	FY2005
Weapon System Engineering	0	0	552279	774300
RDT&E Articles (Quantity)	0	0	6	14

FY2002 Accomplishments (Funded in Project 3020):

Aegis Weapons System (AWS):

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- 1) Conducted two Block 2004 In Process Reviews (IPRs).
- 2) Conducted Block 2004 System Capability Review (SCR).
- 3) Conducted System level performance assessment of Block 2004 capabilities.

Missile:

- 1) Completed two successful Monolithic Solid Divert and Attitude Control System (SDACS) Attitude Control Assembly (ACA) tests.
- 2) Completed Critical Design Review (CDR) for the sealed seeker design.
- 3) Completed Preliminary Design Review (PDR) for SM -3 Infra -red (IR) discrimination.
- 4) Conducted Third Stage Rocket Motor (TSRM) Design Verification Testing.
- 5) Completed TSRM -11 ground tests to validate lessons learned from Aegis LEAP Intercept (ALI) flight missions.
- 6) Conducted Developmental Unit (DU) -5 Monolithic ACA and tube Main Thruster Assembly (MTA) test.

FY2003 Planned Accomplishments (Funded in Project 3020):

AWS:

- 1) Continue engineering development of the Block 2004 Aegis BMD System.
- 2) Conduct Block 2004 System Design Disclosure (SDD).
- 3) Conduct Block 2004 SDD and begin coded development of AWS.
- 4) Conduct element/multi -element test and verification of AWS Computer Program.
- 5) Conduct AWS 3.1 SDD.
- 6) Continue effort to complete AWS Computer Program certification.
- 7) Complete AWS -GMD interoperability engineering efforts.
- 8) Verify shipboard system interfaces with ETEDDS.

Missile:

- 1) Conduct All -Up-Round level CDRs for SM -3 Block I.
- 2) Continue IR discrimination algorithm development.
- 3) Complete Aimpoint Shift capability development.
- 4) Complete Monolithic SDACS design studies.
- 5) Continue Radio Frequency (RF)/IR discrimination guidance algorithm implementation.
- 6) Continue TSRM obsolete material replacement development efforts.
- 7) Continue and complete SM -3 Block 2004 SDACS development engineering tests for multiple pulse configuration.
- 8) Continue and complete SM -3 nose cone structural integrity tests.
- 9) Initiate SM -3 All -Up-Round level obsolete material replacement development effort.
- 10) Verify sealed seeker design.
- 11) Release Kinetic Warhead (KW) initial software build with discrimination features.
- 12) Initiate IR discrimination studies.
- 13) Conduct Monolithic SDACS ground and qualification tests.
- 14) Conduct TSRM Design Verification Test.

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Vertical Launching System (VLS):
 1) Conduct VLSPDR and CDR.
 2) Initiate development of SAASM Crypto VLS VGI upgrade.
 3) Conduct VLS canister thermal trade studies.

FY2004 Planned Accomplishments:

RDT&E Articles: SM -3 Guided Missiles (6)

AWS:
 1) Conduct Trade Study/Assessment of Engineering Review Boards (ERB) results and design alternatives.
 2) Conduct engineering in-process reviews.
 3) Complete engineering algorithm development and design for Surveillance & Track computer programs.
 4) Initiate integration of inert operational missile build for Block 2004 capability.
 5) Continue to support performance capability assessment engineering.
 6) Complete RF/IR discrimination guidance algorithm implementation.
 7) Continue AWS code development and begin early testing.
 8) Conduct water front integration testing.
 9) Continue element/multi-element testing and verification of AWS Computer Program.
 10) Continue coding of the AWS 3.1 Computer Program.

Missile:
 1) Continue use of Captive Carry Test Beds.
 2) Complete IR discrimination development effort.
 3) Complete TSR Mobsol material replacement development efforts.
 4) Continue SM -3 All -Up-Round sol material replacement development effort.
 5) Initiate SM -3 Value Engineering Change Proposal (VECP) implementation engineering analysis.
 6) Initiate SM -3 Hazard Safety tests for Block 2004 Capability.
 7) Complete qualification tests of Monolithic SDACS.
 8) Initiate SM -3 hardware/software integration testing for Block 2004 capability.
 9) Deliver potential research & development (R&D) missiles.
 10) Initiate long lead material buy for additional R&D missiles.
 11) Initiate assembly of additional R&D missiles.
 12) Complete All -Up-Round design and construction modifications for extended shelf life.
 13) Initiate facility upgrade to expand missile delivery throughput.
 14) Initiate test equipment modification to support additional missile build.
 15) Conduct SM -3 Design Verification Tests.

VLS:
 1) Complete development of SAASM, VGI upgrades.
 2) Commence multi-warfare VLS development.

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FY2005 Planned Accomplishments:

RDT&E Articles: SM -3 Guided Missiles(5), BMD3.0 Test Cruiser(1), BMD Cruiser(2), Surveillance and Tracking Destroyers(6)

AWS:

- 1) Complete Block 2004 multi -element integration and testing for BMD3.0.
- 2) Continue engineering development, algorithm modifications, and weapons system modifications for separating target tests, code implementations, and multi -element integration and testing of BMD 3.1.
- 3) Conduct water front integration testing.

Missile:

- 1) Continue All -Up-Round obsolete material replacement development effort.
- 2) Continue SM -3 VECPI implementation engineering effort.
- 3) Continue SM -3 Hazard Safety Testing.
- 4) Complete SM -3 hardware/software integration testing.
- 5) Continue SM -3 Design Verification Testing.
- 6) Deliver R&D missiles initiated in FY2004.
- 7) Initiate long lead material buy for additional R&D missiles.
- 8) Initiate assembly of additional R&D missiles.
- 9) Continue facility upgrade to expand delivery throughput to 2 to 3 missiles per month.
- 10) Continue test equipment modification to support additional missile build.

VLS:

- 1) Complete multi -warfare VLS development.

NOTE: The following guidelines were used in counting the Aegis BMD RDT&E Articles:

- Missiles, targets, and ship modifications are shown in this budget exhibit in their fiscal year of delivery.
- Aegis Weapon System (AWS) computer program deliveries are shown as a single unit delivery in the fiscal year the Engineering Assessment (EA) is conducted.

	FY2002	FY2003	FY2004	FY2005
Test & Evaluation	0	0	70793	83700
RDT&E Articles (Quantity)	0	0	4	3

FY2002 Accomplishments (Funded in Budget Project 3020):

- 1) Conducted Flight Mission -2 (FM -2) Kinetic Warhead (KW) characterization flight test and exceed objectives by hitting the target.
- 2) Completed Aegis LEAP Intercept (ALI) flight test criteria after successfully completing FM -3 flight test with an intercept of the target.
- 3) Conducted Quick Reaction Launch Vehicle (QRLV) -2 tracking mission during Alaskan Command (ALCOM) Northern Edge Exercises.
- 4) Conducted System Integration Test -II (SIT -II) tracking missions.

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<p>5) Conducted Pacific Blitz and Target Complex Generator Test System (TCGTS).</p> <p>6) Conducted 3 full -scale lethality sled tests.</p> <p>7) Participated in Ground -based Midcourse Defense (GMD) Integrated Flight Test -9 (IFT 9) flight mission, using the Aegis Destroyer to provide target tracking data to GMD, and SM -3 KWIR Seeker Captive Carry Test Bed in support of Ballistic Missile Defense System (BMDS) integration.</p> <p>8) Conducted interoperability test with other BMDS elements.</p> <p>FY2003 Planned Accomplishments (Funded in Budget Project 3020):</p> <p>1) Conducted FM -4 flight tests successfully hitting the target in an ascent phase scenario.</p> <p>2) Conduct FM -5 and FM -6 flight tests to verify Block 2004 with KW multi -pulse SDAC Scapability and lethal aim point shift in an ascent phase scenario.</p> <p>3) Participated in GMD IFT 10 using an Aegis Cruiser to provide target tracking data to GMD, and SM -3 KWIR Seeker Captive Carry Test Bed in support of BMDS integration.</p> <p>4) Participate in GMD flight missions RCF -1 using an Aegis Cruiser to provide target tracking data to GMD, and SM -3 KWIR Seeker Captive Carry Test Bed in support of BMDS integration.</p> <p>5) Conduct lethality and post -intercept analysis.</p> <p>6) Continue use of KWIR Seeker Captive Carry and AN/SPY -1 Radar High Range Resolution (HRR) Test Beds.</p> <p>7) Continue to test interoperability with other BMDS elements.</p> <p>8) Acquire Risk Reduction Flight (RRF) and FM -7 targets.</p> <p>9) Acquire targets for Pacific Blitz 04.</p> <p>FY2004 Planned Accomplishments:</p> <p>RDT&E Articles: Targets (4)</p> <p>1) Conduct a risk reduction flight (RRF) of the FM -7 target.</p> <p>2) Conduct FM -7 flight test against a separating target.</p> <p>3) Participate in GMD tracking missions using Aegis Cruiser and KWIR Seeker Captive Carry Test Bed in support of BMDS integration.</p> <p>4) Participate in Pacific Blitz 04 tracking mission.</p> <p>5) Continue post -intercept lethality analysis.</p> <p>6) Continue to test interoperability with other BMDS elements.</p> <p>7) Continue use of Captive Carry and AN/SPY -1 Radar HRR Test Beds.</p> <p>8) Acquire a Risk Reduction Flight and FM -9 targets.</p> <p>FY2005 Planned Accomplishments:</p> <p>RDT&E Articles: Targets (3)</p> <p>1) Conduct FM -8 flight test with Block 2004 configuration missile.</p> <p>2) Conduct a risk reduction flight for the FM -9 target.</p> <p>3) Conduct FM -9 flight tests with Block 2004 configuration missile.</p> <p>4) Conduct Block 2004 Engineering Assessment (EA) and At -Seademonstration.</p> <p>5) Participate in four GMD tracking missions (RCF -2, IFT 17, RCF -3, IFT 18) using Aegis Cruiser and KWIR Seeker Captive Carry Test Bed in support of BMDS integration.</p> <p>6) Continue post -intercept lethality analysis.</p>		

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7) Continue to test interoperability with other BMD elements.
 8) Continue use of KWIR Seeker Captive Carry and AN/SPY -1 Radar HRR Test Beds.

	FY2002	FY2003	FY2004	FY 2005
SRBMLowExo	0	0	25234	35600
RDT&E Articles (Quantity)	0	0	0	0

FY2002 Accomplishments (Funded in Budget Project 3020):
 1) Initiated performance studies to implement ship system Radar and Weapons Control System changes to support the low exo atmospheric intercept guidance control changes.
 2) Initiated performance studies to optimize SM -3 Third Stage Guidance Control and Rocket Motor Multi -pulse management to support the low exo -atmospheric intercept.
 3) Initiate modifications to the models and simulation tool to support the Weapon System and SM -3 Missile changes for the low exo -atmospheric intercept capability.

FY2003 Planned Accomplishments (Funded in Budget Project 3020):
 1) Continue performance studies and initiated development of ship system changes to implement the low altitude intercept guidance control changes.
 2) Continue performance studies and initiated development of SM -3 Third Stage Guidance Control and Rocket Motor Multi -pulse management to support the low exo -atmospheric intercept.
 3) Continue modifications to the models and simulation tool to support the Weapon System and SM -3 Missile changes for the low exo -atmospheric intercept capability.

FY2004 Planned Accomplishments:
 1) Completed development of ship system algorithms and software coding changes to implement the low exo -atmospheric intercept guidance control changes.
 2) Completed development of SM -3 Third Stage Guidance Control and Rocket Motor Multi -pulse management algorithms and software coding to support the low exo -atmospheric intercept.
 3) Continue modifications to the models and simulation tool to support the Weapon System and SM -3 Missile changes for the low exo -atmospheric intercept capability.

FY2005 Planned Accomplishments:
 1) Conduct firing tests to validate the low exo -atmospheric intercept capability.
 2) Complete modifications and verification to engagement models and simulation to account for the firing test.

C. Other Program Funding Summary

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603869C Meads Concepts -Dem/Val	0	114781	0	0	0	0	0	0		
PE0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		

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PE0603881CBallisticMissileDefense TerminalDefenseSegment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603883CBallisticMissileDefenseBoost DefenseSegment	583463	718036	626264	653612	755163	665772	477109	354346		
PE0603884CBallisticMissileDefense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0603886CBallisticMissileDefense SystemInterceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603890CBallisticMissileDefense SystemEngineeringandIntegration	0	0	483996	522458	604445	628594	703055	706501		
PE0603888CBallisticMissileDefenseTest andTargets	0	0	611522	711181	661416	643302	639839	672396		
PE0603889CBallisticMissileDefense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0604865CPatriotPAC -3TheaterMissile DefenseAcquisition -EMD	130630	176155	0	0	0	0	0	0		
PE0604867CNavyAreaTheater Missile Defense -EMD	96121	0	0	0	0	0	0	0		
PE0605502CSmallBusinessInnovative Research -MDA	145102	0	0	0	0	0	0	0		
PE0901585CPentagonReservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE0901598CManagementHeadquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE0604861CTheaterHigh -AltitudeArea DefenseSystem -TMD -EMD	818632	888323	0	0	0	0	0	0		

D.AcquisitionStrategy

The Aegis BMD element will follow the MDA'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 Aegis BMD element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance the BMD's capabilities. The best approach (competitive or selected source) will be determined after considering all the technical and management aspects of the program. Current development activities supporting Aegis BMD Block 04 could be used to provide a limited capability to protect deployed U.S. and allied forces.

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MDA Exhibit R - 3RDT & E Project Cost Analysis									Date February 2003			
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment							
I. Product Development Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Weapon System Engineering												
AWS	SS/CPIF	Lockheed Martin/NJ	0	0		117986	2Q	289952	2Q	CONT.	407938	TBD
AWS	FFRDC	MIT/LL/MA	0	0		5478	2Q	5239	2Q	CONT.	10717	TBD
AWS	SS/CPFF	JHU/APL/MD	0	0		2639	1Q	2580	1Q	CONT.	5219	TBD
AWS	MIPR	NSWC/DD/VA	0	0		8253	1Q	8052	1Q	CONT.	16305	TBD
AWS	MIPR	MITRE/VA	0	0		1074	1Q	1027	1Q	CONT.	2101	TBD
AWS	MIPR	NSWC/PHD/CA	0	0		2620	1Q	2580	1Q	CONT.	5200	TBD
AWS	Other	MDA	0	0		5000	1Q	7800	1Q	CONT.	12800	TBD
AWS	Various	VARIOUS	0	0		7150	1Q	6270	1Q	CONT.	13420	TBD
MISSILE	SS/CPIF	RAYTHOEN/AZ	0	0		261077	2Q	313313	2Q	CONT.	574390	TBD
MISSILE	SS/CPIF	JHU/APL/MD	0	0		8573	2Q	6609	2Q	CONT.	15182	TBD
MISSILE	FFRDC	MIT/LL/MA	0	0		1905	1Q	1469	1Q	CONT.	3374	TBD
MISSILE	MIPR	NSWC/DD/VA	0	0		7144	1Q	5508	1Q	CONT.	12652	TBD
MISSILE	MIPR	NSWC/PHD/CA	0	0		5398	1Q	4161	1Q	CONT.	9559	TBD
MISSILE	MIPR	WSMR/NM	0	0		2223	1Q	1714	1Q	CONT.	3937	TBD
MISSILE	MIPR	NSWC/CD/CA	0	0		1588	2Q	1224	2Q	CONT.	2812	TBD
MISSILE	MIPR	NSWC/IH/MD	0	0		1111	2Q	852	2Q	CONT.	1963	TBD
MISSILE	MIPR	NAWC/CL/CA	0	0		953	1Q	734	1Q	CONT.	1687	TBD
MISSILE	Other	MDA	0	0		6750	1Q	8502	1Q	CONT.	15252	TBD
MISSILE	Various	VARIOUS/VARIO US	0	0		14300	1Q	9900	1Q	CONT.	24200	TBD
SRBM Low Exo												
	SS/CPIF	Lockheed Martin/NJ	0	0		2500	2Q	3500	2Q	CONT.	6000	TBD
	SS/CPIF	Raytheon/AZ	0	0		22734	2Q	32100	2Q	CONT.	54834	TBD
Subtotal Product Development			0	0		486456		713086			1199542	
Remarks												

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MDA Exhibit R -3RDT&E Project Cost Analysis	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-INOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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II. Support Costs Cost (\$in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Weapon System Engineering												
	SS/CPFF	JHU/APL/MD	0	0		6162	2Q	7638	2Q	CONT.	13800	TBD
	SS/CPAF	Lockheed Martin/NJ	0	0		2738	2Q	3395	2Q	CONT.	6133	TBD
	FFRDC	MIT/LL/MA	0	0		5135	1Q	6365	1Q	CONT.	11500	TBD
	MIPR	NSWC/DD/VA	0	0		5502	1Q	6821	1Q	CONT.	12323	TBD
	SS/CPAF	Raytheon/AZ	0	0		1312	2Q	1627	2Q	CONT.	2939	TBD
	SS/CPFF	SEG/VA	0	0		3394	1Q	4951	1Q	CONT.	8345	TBD
	SS/CPFF	BMPCOE/MD	0	0		559	1Q	693	1Q	CONT.	1252	TBD
	SS/CPFF	MITRE	0	0		513	1Q	637	1Q	CONT.	1150	TBD
	Other	MDA	0	0		985	1Q	438	1Q	CONT.	1423	TBD
	Various	VARIOUS/VARIO US	0	0		2400	1Q	3135	1Q	CONT.	5535	TBD
Subtotal Support Costs			0	0		28700		35700			64400	

Remarks

III. Test and Evaluation Cost (\$in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test & Evaluation												
	MIPR	PMRF/HI	0	0		5913	1Q	6154	1Q	CONT.	12067	TBD
	C/CPFF	HTS/CA	0	0		2695	2Q	2805	2Q	CONT.	5500	TBD
	SS/CPAF	Xontech/CA	0	0		1013	2Q	1054	2Q	CONT.	2067	TBD
	MIPR	NSWC/PHD/CA	0	0		4288	1Q	4463	1Q	CONT.	8751	TBD
	MIPR	NAWC/PM/CA	0	0		2300	1Q	2394	1Q	CONT.	4694	TBD
	MIPR	NSWC/Corona/CA	0	0		1034	1Q	1076	1Q	CONT.	2110	TBD
	MIPR	NSWC/DD/VA	0	0		8454	1Q	8799	1Q	CONT.	17253	TBD

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MDAExhibitR -3RDT&EProjectCostAnalysis										Date February2003		
APPROPRIATION/BUDGETACTIVITY					R-INOMENCLATURE							
4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					0603882CBallisticMissileDefenseMidcourseDefenseSegment							
	MIPR	CINPACFLT/HI	0	0		546	1Q	605	1Q	CONT.	1151	TBD
	SS/CPFF	JHU/APL/MD	0	0		4995	2Q	5199	2Q	CONT.	10194	TBD
	MIPR	SMDC/AL	0	0		30184	1Q	36681	1Q	CONT.	66865	TBD
	MIPR	SPAWAR/CA	0	0		1201	1Q	1250	1Q	CONT.	2451	TBD
	MIPR	DOI/DC	0	0		977	1Q	1017	1Q	CONT.	1994	TBD
	MIPR	AIRPAC/HI	0	0		868	1Q	903	1Q	CONT.	1771	TBD
	Other	MDA	0	0		2793	1Q	2960	1Q	CONT.	5753	TBD
	Various	VARIOUS/VARIO US	0	0		3532	1Q	8340	1Q	CONT.	11872	TBD
SubtotalTestandEvaluation			0	0		70793		83700			154493	
Remarks												
IV.ManagementServicesCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
WeaponSystemEngineering												
	Other	NAVSEA/DC	0	0		11100	1Q	12000	1Q	CONT.	23100	TBD
	SS/CPFF	JHU/API/MD	0	0		2300	2Q	2550	2Q	CONT.	4850	TBD
	MIPR	NSWC/DD/VA	0	0		1700	1Q	1850	1Q	CONT.	3550	TBD
	C/CPFF	Anteon/VA	0	0		25900	1Q	26000	1Q	CONT.	51900	TBD
	SS/CPFF	Paradigm/VA	0	0		5700	1Q	5700	1Q	CONT.	11400	TBD
	SS/CPAF	Lockheed Martin/NJ	0	0		1200	1Q	1250	1Q	CONT.	2450	TBD
	SS/CPAF	Raytheon/AZ	0	0		1400	2Q	1450	2Q	CONT.	2850	TBD
	Other	MDA	0	0		7934	1Q	4564	1Q	CONT.	12498	TBD
	Various	Various/Various	0	0		5123	1Q	5750	1Q	CONT.	10873	TBD
SubtotalManagementServices			0	0		62357		61114			123471	
Remarks												
ProjectTotalCost			0	0		648306		893600			1541906	
Remarks												

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MDAExhibitR -4ScheduleProfile	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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FiscalYear	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TestingMilestones																																
HEROTest															▲																	
MonolithicDACSFlightQualification							▲																									
MonolithicDACSMDU1					▲																											
MonolithicDACSMDU2						▲																										
PacificBlitz04												▲																				
RCF1												▲																				
RCF2															▲																	
RCF3																▲																
TargetRiskReductionFlight											▲				▲																	
ThirdStageQualification								▲																								
Deliveries																																
AWS/SM-3FM5configuration							▲																									
AWS/SM-3FM6configuration								▲																								
AWS/SM3FM7configuration												▲																				
Block04ComputerProgram(final)																				▲												

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MDAExhibitR -4ScheduleProfile	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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FiscalYear	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Deliveries																																
Block04ComputerProgram(initial)														▲																		
Surveillance&Track1.3																																
Surveillance&TrackComputerProgram 1.2																																
IntegratedFlightTest																																
IFT10																																
IFT14																																
IFT15																																
IFT17																																
IFT18																																
DevelopmentMilestones																																
Block04CDRReport																																
SM-3BlockI/IACDR																																
TSCR																																
VLSCDR																																
VLSPDR																																

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MDAExhibitR -4ScheduleProfile	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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FiscalYear	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
FlightTests																																
FM4				▲																												
FM5							▲																									
FM6								▲																								
FM-7												▲																				
FM-8																▲																
FM-9																				▲												
OffRampDeliveries/Ships																																
EngagementCruiser																▲				▲												
EngagementDDGs(BMD3.1)																▲																
Surveillance&TrackingDDGs(BMD3.0)																▲																
Surveillance&TrackingDDGs(BMD3.1)																																
TestDDGs								▲																								
OfframpDeliveries/Missiles																																
AcceleratedBlockI Missiles																																
BlockI Missiles																																

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MDAExhibitR -4AScheduleDetail						Date February2003		
APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)				R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment				
ScheduleProfile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
TestingMilestones								
HEROTest				2Q				
MonolithicDACSFlyQualification		3Q						
MonolithicDACSMU1		1Q						
MonolithicDACSMU2		2Q						
PacificBlitz04			3Q					
RCF1		4Q						
RCF2				1Q				
RCF3				3Q				
TargetRiskReductionFlight			2Q	2Q				
ThirdStageQualification		4Q						
Deliveries								
AWS/SM -3FM5configuration		3Q						
AWS/SM -3FM6configuration		4Q						
AWS/SM -3FM7configuration			4Q					
Block04ComputerProgram(final)					1Q			
Block04ComputerProgram(initial)				1Q				
Surveillance&Track1.3			1Q					
Surveillance&TrackComputerProgram1.2		4Q						
IntegratedFlightTest								
IFT10		1Q						
IFT14			1Q					
IFT15			1Q					
IFT17				2Q				
IFT18				4Q				
DevelopmentMilestones								
Block04CDRReport		4Q						
SM -3BlockI/IACDR		3Q						
TSCR		1Q						
VLSCDR		4Q						
VLSPDR		2Q						

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MDAExhibitR -4AScheduleDetail						Date February2003	
APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)				R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment			
FlightTests							
FM -4		1Q					
FM -5		3Q					
FM -6		4Q					
FM -7			4Q				
FM -8				3Q			
FM -9				4Q			
OffRampDeliveries/Ships							
EngagementCruiser				1Q,3Q			
EngagementDDGs(BMD3.1)					2Q		
Surveillance&TrackingDDGs(BMD3.0)				1Q			
Surveillance&TrackingDDGs(BMD3.1)					1Q		
TestDDGs		4Q					
OfframpDeliveries/Missiles							
AcceleratedBlockIMissiles			3Q-4Q				
BlockIMissiles				2Q-4Q	1Q		

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
0809 AEGIS Ballistic Missile Defense Block 2006	0	0	23859	72500	376828	299321	0	0
RDT&E Article sQty	0	0	0	0	34	16	0	0

A. Mission Description and Budget Item Justification

This Budget Project was previously captured in Project 3020 in FY 2002 and FY 2003.

- Aegis Ballistic Missile Defense (BMD) Block 2006 will evolve (through spiral capability driven development) from the Block 2004 Aegis Weapon System (AWS) with development focused on improved prototype radar discrimination:
- Defeat unitary and separating targets (Short Range Ballistic Missiles (SRBM), Medium Range Ballistic Missiles (MRBM), and Intermediate Range Ballistic Missiles (IRBM) with Aegis BMD configured cruisers, destroyers and STANDARD Missile -3 (SM -3) guided missiles.
 - Provide the potential for emergency system use.
 - Provide improved battlespace to the Block 2004 capability through changes to the Concepts of Operations (CONOPS) such as Boost Phase engagements.
 - Provide improved Inter -Continental Ballistic Missile (ICBM) surveillance and track data through the BMD to the Ground -based Midcourse Defense (GMD) system for radar cueing and development of early fire control information.
 - Support the continued development of the Aegis discrimination Test Bed for development of new radar discrimination algorithms such as feature extraction algorithms.
 - Demonstrate improved discrimination with synthetic bandwidth AN/SPY -1 Radar Test Bed modifications both ashore and at -sea.
 - Use either the SM -3 Block I or SM -3 Block IA missiles.
 - Allow for international participation.
 - Perform an operational assessment.
 - Modify additional Aegis destroyers with Block 2004 GMD surveillance tracking capability to a BMD engage capability.
 - Provide the ability to rapidly reconfigure BMD ships into a fleet air defense capability.
 - Provide ships with a self -defense capability with all weapons.

B. Accomplishments/Planned Program

	FY2002	FY2003	FY2004	FY2005
Weapons System Engineering	0	0	23859	50233
RDT&E Articles (Quantity)	0	0	0	0

FY2002 Accomplishments (Funded in Budget Project 3020):

- 1) Developed the Block 2006 Program Plan.
- 2) Conducted AN/SPY -1 Radar Ballistic Missile Defense (BMD) Signal Processor (BSP) System Design Review (SDR).

FY2003 Planned Accomplishments (Funded in Budget Project 3020):

- 1) Complete inputs for Missile Defense Agency (MDA) Engineering Review Boards (ERB) for Block 2006.
- 2) Complete Block 2006 capability assessment.
- 3) Continue Aegis AN/SPY -1 High Range Resolution (HRR) work.

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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- 4) Continue fabrication of AN/SPY -1 BSP Advanced Developmental Model (ADM).
 5) Continue Infra -red (IR) discrimination advanced studies for Block 2006 capabilities.

FY2004 Planned Accomplishments:

- 1) Demonstrate real time display on discrimination Test Bed.
 2) Continue fabrication and start incremental testing of AN/SPY -1 BSP (ADM).

FY2005 Planned Accomplishments:

- 1) Complete fabrication and start incremental testing of AN/SPY -1 BSP (ADM).
 2) Commence at-sea testing of AN/SPY -1 BSP Advanced Developmental Model (ADM).
 3) Continue to support performance capability assessment engineering.
 4) Continue IR discrimination advanced studies.
 5) Initiate SM -3 hardware/software integration testing.

	FY2002	FY2003	FY2004	FY2005
Test & Evaluation	0	0	0	22267
RDT&E Articles (Quantity)	0	0	0	0

FY2005 Planned Accomplishments:

- 1) Initiate procurement of tracking targets for Pacific Blitz 06
 2) Initiate procurement of targets for FM -10 and FM -11

C. Other Program Funding Summary

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603883C Ballistic Missile Defense Boost Defense Segment	583463	718036	626264	653612	755163	665772	477109	354346		
PE0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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PE0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0603869C Meads Concepts -Dem/Val	0	114781	0	0	0	0	0	0		
PE0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE0604865C Patriot PAC -3 Theater Missile Defense Acquisition -EMD	130630	176155	0	0	0	0	0	0		
PE0604867C Navy Area Theater Missile Defense -EMD	96121	0	0	0	0	0	0	0		
PE0605502C Small Business Innovative Research -MDA	145102	0	0	0	0	0	0	0		
PE0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE0604861C Theater High -Altitude Area Defense System -TMD -EMD	818632	888323	0	0	0	0	0	0		

D. Acquisition Strategy

The Aegis BMD element will follow the MDA'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 Aegis BMD element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance the BMD's capabilities. The best approach (competitive or selected source) will be determined after considering all the technical and management aspects of the program. Current development activities supporting Aegis BMD Block 04 could be used to provide a limited capability to protect deployed U.S. and allied forces.

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MDAExhibitR -3RDT&EProjectCostAnalysis										Date February2003		
APPROPRIATION/BUDGETACTIVITY					R-INOMENCL ATURE							
4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					0603882CBallisticMissileDefenseMidcourseDefenseSegment							
I.ProductDevelopmentCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
WeaponsSystemEngineering												
WeaponsSystemEngineering	SS/CPAF	Lockheed Martin/NJ	0	0		21400	1Q	41800	1Q	CONT.	63200	CONT.
SubtotalProductDevelopment			0	0		21400		41800			63200	
Remarks												
II.SupportCostsCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
SubtotalSupportCosts			0	0		0		0			0	
Remarks												
III.TestandEvaluationCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
Test&Evaluation												
	MIPR	SMDC/AL	0	0		0		20000	2Q	CONT.	20000	TBD
	Various	Various/Various	0	0		0		1200	3Q	CONT.	1200	TBD
SubtotalTestandEvaluation			0	0		0		21200			21200	
Remarks												

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MDAExhibitR -3RDT&EProjectCostAnalysis									Date February2003			
APPROPRIATION/BUDGETACTIVITY					R-1NOMENCL ATURE							
4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					0603882CBallisticMissileDefenseMidcourseDefenseSegment							
IV.ManagementServicesCost(\$in Thousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
WeaponsSystemEngineering												
	Other	NAVSEA/DC	0	0		250	1Q	900	1Q	CONT.	1150	CONT.
	SS/CPFF	JHU/APL/MD	0	0		100	1Q	500	1Q	CONT.	600	CONT.
	MIPR	NSWC/DD/VA	0	0		50	1Q	400	1Q	CONT.	450	CONT.
	C/CPFF	Anteon/VA	0	0		200	2Q	1000	2Q	CONT.	1200	CONT.
	SS/CPFF	Paradigm/VA	0	0		50	1Q	450	1Q	CONT.	500	CONT.
	SS/CPAF	Lockheed Martin/NJ	0	0		50	2Q	500	2Q	CONT.	550	CONT.
	SS/CPAF	Raytheon/AZ	0	0		50	2Q	500	2Q	CONT.	550	CONT.
	Other	MDA	0	0		1400	1Q	2016	1Q	CONT.	3416	CONT.
	Various	Various/Various	0	0		309	1Q	3234	1Q	CONT.	3543	CONT.
SubtotalManagementServices			0	0		2459		9500			11959	
Remarks												
ProjectTotalCost			0	0		23859		72500			96359	
Remarks												

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MDAExhibitR -4AScheduleDetail						Date February2003		
APPROPRIATION/BUDGETACTIVIT Y 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)				R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment				
ScheduleProfile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY20 08	FY2009
TestingMilestones								
PacificBlitz06					3Q			
IntegratedFlightTest								
IFT21					3Q			
IFT22						1Q		
IFT23/24						2Q		
IFT26						3Q		
DevelopmentMilestones								
AWSBMD3.2Development			1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
AWSBMD3.2FeatureExtractionDemo				3Q				
AWSBMD3.2ObjectClassificationDemo					1Q			
AWSBMD3.2RealTimeDisplayDemo			4Q					
AWSSurveillance&Trackupgrades		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
FlightTests								
FM10					2Q			
FM11					4Q			
FM12						2Q		
FM13						4Q		
OfframpDeliveries/Missiles								
BlockIAMissiles					2Q-4Q	1Q-3Q		

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
0909 AEGIS Ballistic Missile Defense Block 2008	0	0	0	116282	186281	322353	470045	386358
RDT&E Articles Qty	0	0	0	0	0	0	4	2

A. Mission Description and Budget Item Justification

This Budget Project was previously captured in Project 3020 in FY2002 and FY2003.

Aegis Ballistic Missile Defense (BMD) Block 2008 will evolve (through spiral capability driven development) from the Block 2006 Aegis Weapon System (AWS) with the focus of development on fully integrated radar discrimination:

- Defeats, warheads in the presence of complex countermeasures, unitary and separating targets (Short Range Ballistic Missiles (SRBM), Medium Range Ballistic Missiles (MRBM), and Intermediate Range Ballistic Missiles (IRBM) with Aegis BMD configured Cruisers, Destroyers and SM -3 guided missiles.
- Develops Aegis BMD weapons system with fully integrated synthetic widebandwidth AN/SPY -1 Radar and appropriated discrimination algorithms.
- Upgrades the AN/SPY -1 Radar with the BMD Signal Processor (BSP).
- Certifies the developed system for tactical deployment.
- Performs an operational assessment.
- Monitors and supports the Sea-based Boost Phase Program as required.
- Prepares to test BMD Sinterceptor being developed separately.

B. Accomplishments/Planned Program

	FY2002	FY2003	FY2004	FY2005
Weapons System Engineering	0	0	0	116282
RDT&E Articles (Quantity)	0	0	0	0

FY2005 Planned Accomplishments:

- Conduct Trade Study/Assessment of Engineering Review Boards (ERB) results and design alternatives.
- Initiated development of Ballistic Missile Defense (BMD) 4.0 Computer Program.
- Conduct BMD 4.0 Preliminary Design Review (PDR).

C. Other Program Funding Summary

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0604861C Theater High Altitude Area Defense System -TMD -EMD	818632	888323	0	0	0	0	0	0		

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MDAExhibitR -2ARDT&EProjectJustification	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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PE0604865CPatriotPAC -3TheaterMissile DefenseAcquisition -EMD	130630	176155	0	0	0	0	0	0	0		
PE0604 867CNavyAreaTheaterMissile Defense -EMD	96121	0	0	0	0	0	0	0	0		
PE0605502CSmallBusinessInnovative Research -MDA	145102	0	0	0	0	0	0	0	0		
PE0901585CPentagonReservation	6381	7432	14481	13384	12758	12850	13158	13476			
PE0901598CManagementHeadqu arters - MDA	30191	25365	93441	101373	114107	121743	128972	133499			
PE0603888CBallisticMissileDefenseTest andTargets	0	0	611522	711181	661416	643302	639839	672396			
PE0603869CMeadsConcepts -Dem/Val	0	114781	0	0	0	0	0	0			
PE0603175CBallistic MissileDefense Technology	145021	151130	240820	205791	200956	247990	287864	306472			
PE0603879CAAdvancedConcepts, EvaluationsandSystems	0	0	151696	216778	166308	193949	241947	234484			
PE0603880CBallisticMissileDefense SystemSegment	790535	1046652	0	0	0	0	0	0			
PE0603881CBallisticMissileDefense TerminalDefenseSegment	195800	136399	810440	924356	985514	805785	558071	371649			
PE0603883CBallisticMissileDefenseBoost DefenseSegment	583463	718036	626264	653612	755163	665772	477109	354346			
PE0603884CBallisticMissileDefense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906			
PE0603886CBallisticMissileDefense SystemInterceptors	0	0	301052	541178	1127180	1729613	2558327	2904096			
PE0603890CBallisticMissileDefen se SystemEngineeringandIntegration	0	0	483996	522458	604445	628594	703055	706501			

D.AcquisitionStrategy

TheAegisBMDelementwillfollowtheMDA'scapability -basedacquisitionstrategythatemphasizestesting,spiraldevelopment,andevolutionary acquisitionthroughtheuseoftwo -yearcapability blocks.TheDepartmenthasrestructuredthemissiledefenseacquisitionstrategyintoamulti -pathapproachtoassurethatthemosteffectivemissiledefenseisavailableattheearliestpossibletime. TheAegisBMDelementacquisitionapproachsupportsevolutionarydevelopment,continuouslybuildinguponondemonstratedcapabilitiestoadvancetheBMDScapabilities.Thebestapproach (competitiveorselectedsource)willbedeterminedafterconsideringallthetechnicalandmanagementaspectsoftheprogram.

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MDA Exhibit R - 3RDT & E Project Cost Analysis									Date February 2003			
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment							
I. Product Development Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Weapons System Engineering												
AWS	SS/CPAF	Lockheed Martin/NJ	0	0		0		88611		CONT.	88611	TBD
AWS	FFRDC	MIT/LL/MA	0	0		0		5717		CONT.	5717	TBD
AWS	SS/CPFF	JHU/APL/MD	0	0		0		2401		CONT.	2401	TBD
AWS	MIPR	NSWC/DD/VA	0	0		0		7627		CONT.	7627	TBD
AWS	MIPR	NSWC/PHD/CA	0	0		0		2274		CONT.	2274	TBD
AWS	MIPR	MITRE/VA	0	0		0		1121		CONT.	1121	TBD
AWS	Various	Various/Various	0	0		0		4649		CONT.	4649	TBD
AWS	Other	MDA	0	0		0		3882			3882	
Subtotal Product Development			0	0		0		116282			116282	
Remarks												
II. Support Costs Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Support Costs			0	0		0		0			0	
Remarks												
III. Test and Evaluation Cost (\$ in Thousands)												
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Test and Evaluation			0	0		0		0			0	
Remarks												

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MDAExhibitR -3RDT&EProjectCostAnalysis	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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IV.ManagementServicesCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
SubtotalManagementServices			0	0		0		0			0	

Remarks

ProjectTotalCost			0	0		0		116282			116282	
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Remarks

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MDAExhibitR -4AScheduleDetail						Date February2003		
APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)				R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment				
ScheduleProfile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY 2009
TestingMilestones								
PacificBlitz08							3Q	
IntegratedFlightTest								
IFT28							3Q	
IFT29							1Q	
IFT30								1Q
DevelopmentMilestones								
AWSBMD3.xDevelopment				1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q
AWSB MD3.xPDR				3Q				
AWSBMD3.xCDR					3Q			
AWSBMD3.xCSEDSTesting							2Q	
AWSBMD3.xDelivery								4Q
AWSBMD3.xEngineeringAssessment								1Q
Radar&SignalProcessingRiskReduction						3Q-4Q	1Q-4Q	1Q
FlightTests								
FM14							2Q	
FM15							3Q	
FM16								2Q
FM17								4Q

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MDAExhibitR -2ARDT&EProjectJustification	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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COST(\$inThousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
0009AEGISBallisticMissileDefenseBlock2010	0	0	0	0	0	7808	104346	144568
RDT&EArticlesQty	0	0	0	0	0	0	0	0

A.MissionDescriptionandBudgetItemJustification

ThisBudgetProjectwaspreviouslycapturedinProject3020inFY2002andFY2003.

AegisBallisticMissileDefense(BMD)Block2010willevolve(throughspiralcapabilitydevelopment)fromtheBMDBlock2008AegisWeaponSystemanditsintegrationwiththeNavy developedAegisOpenArchitectureSystem:

- Defeatsawidevarietyofballisticmissilesinthepresenceofcomplexcountercountermeasures(ShortRangeBallisticMissiles(SRBM),MediumRangeBallisticMissiles(MRBM),and IntermediateRangeBallisticMissiles(IRBM).
- ProvidesforpossibleintegrationoftheAegisBMDWeaponSystemandtheMissileDefenseAgency(MDA)CommonInterceptor.
- Certifiesthe developedsystemfortacticaluse.
- ConductsanOperationalAssessment.

B.Accomplishments/PlannedProgram

	FY2002	FY2003	FY2004	FY2005
WeaponSystemEngineering				
RDT&EArticles(Quantity)				

FundingforthisprojectisnotprogrammeduntilFY2007.

	FY2002	FY2003	FY2004	FY2005
Test&Evaluation				
RDT&EArticles(Quantity)				

FundingforthisprojectisnotprogrammeduntilFY2007.

C.OtherProgramFundingSummary

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603869CMeasConcepts -Dem/Val	0	114781	0	0	0	0	0	0		
PE0603175CBallisticMissileDefense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE0603879CAdvancedConcepts, EvaluationsandSystems	0	0	151696	216778	166308	193949	241947	234484		

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MDAExhibitR -2ARDT&EProjectJustification							Date February2003			
APPROPRIATION/BUDGETACTIVITY					R-1NOMENCLATURE					
4.AdvancedComponentDevelopmentandPrototypes(ACD&P)					0603882CBallisticMissileDefenseMidcourseDefenseSegment					
PE0603880CBallisticMissileDefense SystemSegment	790535	1046652	0	0	0	0	0	0		
PE0603881CBallisticMissileDefense TerminalDefenseSegment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603883CBal listicMissileDefenseBoost DefenseSegment	583463	718036	626264	653612	755163	665772	477109	354346		
PE0603884CBallisticMissileDefense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0603886CBallisticMissileDefense SystemInterceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603888CBallisticMissileDefenseTest andTargets	0	0	611522	711181	661416	643302	639839	672396		
PE0603889CBallisticMissileDefense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0604861CTheaterHigh -AltitudeArea DefenseSystem -TMD -EMD	818632	888323	0	0	0	0	0	0		
PE0604865CPatriotPAC -3TheaterMissile DefenseAcquisition -EMD	130630	176155	0	0	0	0	0	0		
PE0604867CNavyAreaTheaterMissile Defense -EMD	96121	0	0	0	0	0	0	0		
PE0605502CSmallBusinessInnovative Research -MDA	145102	0	0	0	0	0	0	0		
PE0901585CPentagonReservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE0901598CManagementHeadquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE0603890CBallisticMissileDefense SystemEngineeringandIntegration	0	0	483996	522458	604445	628594	703055	706501		

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MDAExhibitR -4AScheduleDetail						Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissi leDefenseMidcourseDefenseSegment
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ScheduleProfile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
DevelopmentMilestones								
Block2010CDR								3Q
Block2010PDR							3Q	
ElementCapabilitySpec						4Q		

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MDA Exhibit R -2A RDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
0402 Japanese Cooperative Program	0	0	54000	73000	25000	0	0	0
RDT&E Articles Qty	0	0	0	1	2	0	0	0

A. Mission Description and Budget Item Justification

This Budget Project was previously captured in Project 3020 in FY 2002 and 2003.

The U.S./Japan Cooperative Research (JCR) will continue per the U.S. Department of Defense (DoD)/Japan Defense Agency (JDA) Memorandum of Agreements signed in 1999 to conduct cooperative research in Ballistic Missile Defense. The focus of research is on four components of the SM-3 guided missile: sensor, advanced kinetic warhead, second stage propulsion, and lightweight nose cone. In FY 2005 and 2006, the JCR project plan to flight test the lightweight nose cone in Joint Control Test Vehicle -1 (JCTV -1) and Joint Flight Mission -1 (JFM -1).

B. Accomplishments/Planned Program

	FY2002	FY2003	FY2004	FY2005
Japan Cooperative Research Project	0	0	54000	73000
RDT&E Articles (Quantity)	0	0	0	1

FY2002 Accomplishments (Funded in Budget Project 3020):

- 1) Continued development and system engineering support for the four U.S./Japan Cooperative Research (JCR) components.
- 2) Completed nose cone Preliminary Design Review (PDR) supporting integration of Japan Defense Agency (JDA) developed nose cone on Joint Control Test Vehicle -1 (JCTV -1) and Joint Flight Mission -1 (JFM -1).
- 3) Completed 21" missile components PDR supporting JDA development of second stage propulsion, Quantum Well Infrared Photodetector (QWIP) seeker, and lightweight nose cone of an advanced SM-3.
- 4) Continued design and development of the DoD two-color seeker toward Captive Carry.
- 5) Continued design and development of Divert and Attitude Control System (DACS) alternatives.
- 6) Performed system engineering support for JDA design and development of second stage propulsion, Japan QWIP seeker, and lightweight nose cone.

FY2003 Planned Accomplishments (Funded in Budget Project 3020):

- 1) Continued development and system engineering support for the four U.S./JCR components.
- 2) Initiate procurement of test articles and ship modifications for JCTV -1 and JFM -1.
- 3) Continue PDR for Ship system and Vertical Launching System (VLS) modifications.
- 4) Conduct Critical Design Review (CDR) supporting integration of JDA developed nose cone on JCTV -1 and JFM -1.
- 5) Complete ground testing in the U.S. of the Japan QWIP and DoD Mercury Cadmium Telluride (MCT) seekers.
- 6) Continue system engineering support for JDA design and development of second stage propulsion, QWIP seeker, and lightweight nose cone.
- 8) Complete JCR nose cone wind tunnel tests.

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MDA Exhibit R -2A RDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-INOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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FY2004 Planned Accomplishments:
 1) Continued development and system engineering support for the four U.S./JCR components.
 2) Continue procurement of test articles and ship modifications for JCTV -1 and JFM -1.
 3) Deliver JDANose cone to the U.S. for missile integration.
 4) Conduct CDR for ship system and VLS modifications.
 5) Conduct Captive Carry testing of U.S. MCT seeker.
 6) Support software builds for JCR flights.

FY2005 Planned Accomplishments:

RDT&E Articles: SM -3 Guided Missile (1)

1) Conduct flight test JCTV -1.

C. Other Program Funding Summary

	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603883C Ballistic Missile Defense Boost Defense Segment	583463	718036	626264	653612	755163	665772	477109	354346		
PE0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		
PE0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0604861C Theater High -Altitude Area Defense System -TMD -EMD	818632	888323	0	0	0	0	0	0		

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MDAExhibitR -2A RDT&EProjectJustification	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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PE0604865CPatriotPAC -3TheaterMissile DefenseAcquisition -EMD	130630	176155	0	0	0	0	0	0	0	0
PE0603869CMeasConcepts -Dem/Val	0	114781	0	0	0	0	0	0	0	0
PE0603175CBallisticMissileDefense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE0605502CSmallBusinessInnovative Research -MDA	145102	0	0	0	0	0	0	0		
PE0901585CPentagonReser vation	6381	7432	14481	13384	12758	12850	13158	13476		
PE0901598CManagementHeadquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE0604867CNavyAreaTheaterMissile Defense -EMD	96121	0	0	0	0	0	0	0		

D.AcquisitionStrategy

The major focus of activity for the Japan Cooperative Research Project will be preparation for and execution of the JCTV -1 and JFM -1 flight tests. Both tests will be integrated into the larger Aegis BMD test program. Acquisition of hardware, software modifications and required services will occur in conjunction with contractual and tasking efforts for U.S. Navy work and events.

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MDAExhibitR -3RDT&EProjectCostAnalysis	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4. AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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I.ProductDevelopmentCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
JapanCooperativeResearch Project												
SM-3	SS/CPAF	Raytheon/AZ	0	0		49966	2Q	68966	2Q	CONT.	118932	TBD
AWS	SS/CPAF	Lockheed Martin/NJ	0	0		850	1Q	750	1Q	CONT.	1600	TBD
VLS	SS/CPAF	UDLP/MN	0	0		300	2Q	300	2Q	CONT.	600	TBD
SubtotalProductDevelopment			0	0		51116		70016			121132	

Remarks

II.SupportCostsCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
JapanCooperativeResearch Project												
SystemEngineering	SS/CPFF	NSWC/DD/VA	0	0		880	1Q	880	1Q	CONT.	1760	TBD
SystemEngineering	SS/CPFF	NSWC/PHD/CA	0	0		161	1/2Q	161	1/2Q	CONT.	322	TBD
SystemEngineering	SS/CPFF	JHU/APL/MD	0	0		857	2Q	857	2Q	CONT.	1714	TBD
SystemEngineering	Various	Various/Various	0	0		856	1Q	956	1Q	CONT.	1812	TBD
SystemEngineering	SS/CPFF	MEI/VA	0	0		130	1Q	130	1Q	CONT.	260	TBD
SubtotalSupportCosts			0	0		2884		2984			5868	

Remarks

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MDAExhibitR -3RDT&EProjectCostAnalysis										Date February2003		
APPROPRIATION/BUDGETACTIVITY					R-1NOMENCLATURE							
4. AdvancedComponentDevelopmentandPrototypes(ACD&P)					0603882CBallisticMissileDefenseMidcourseDefenseSegment							
III.TestandEvaluationCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
SubtotalTestandEv aluation												
Remarks												
IV.ManagementServicesCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
SubtotalManagementServices												
Remarks												
ProjectTotalCost			0	0		54000		73000			127000	
Remarks												

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MDAExhibitR -4ScheduleProfile	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-INOMENCLATURE 0603882CBallisticMis sileDefenseMidcourseDefenseSegment
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FiscalYear	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DevelopmentMilestones																																
NoseconeCDR							▲																									
NoseconePDR		▲																														
ShipSystemCDR											▲																					
ShipSystemPDR							▲																									
JapanCooperativeResearchProject																																
JCTV-1																▲																
JFM-1																				▲												

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MDAExhibitR -4AScheduleDetail						Date February2003		
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)				R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment				
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ScheduleProfile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
DevelopmentMilestones								
NoseconeCDR		3Q						
NoseconePDR	2Q							
ShipSystemCDR			2Q					
ShipSystemPDR		3Q						
JapanCooperativeResearchProject								
JCTV -1				4Q				
JFM -1					2Q			

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
3050 Segment Common Engineering and Integration	22408	94907	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

[The Risk Reduction efforts are transitioned to the Program Element (PE) 0603890C Ballistic Missile Defense System (BMDS) Core beginning with FY2004 while the EKV efforts transition to the BMDS Interceptor PE0603886C. The Counter/Countermeasures (C/CM) efforts are transitioned to PE0603890C Ballistic Missile Defense System Core beginning with FY2004. The BMD Information Management System effort transition to PE0603880CBMDS System Segment in FY2003, and to PE0603890C Ballistic Missile Defense System Core beginning in FY2004.]

This project provides for three primary efforts of Risk Reduction, Counter/Countermeasures (C/CM), and Engineering and BMD Information Management Systems risk reductions support for the midcourse segment. The risk reduction efforts provide engineering risk management activities for the ground and sea based elements. The countermeasures mitigation activity addresses a few reentry vehicles with simple countermeasure capabilities and then expands to complex countermeasures mitigation with several reentry vehicles. In addition, the engineering management and information management system support activities support the risk reduction and C/CM activities.

Risk Reduction:

The risk reduction activities include a number of efforts for FY2002 and FY2003 including the Complementary Exo-atmospheric Kill Vehicle (CEKV), Midcourse and AEGIS BMD risk reduction, and the BMDS Interceptor risk reduction.

The CEKV risk reduction efforts began in FY2002 and consist of an effort to develop a kill vehicle (KV) utilizing the latest technology to provide risk mitigation. This effort begins the study to determine the ability to develop a potential common EKV for Ground and Sea-based Midcourse Defense. The development will be based on insertion of new technology and lessons learned from existing EKV development. The CEKV program is planned to include design, testing and project insertion, where appropriate, into the block development approach of BMDS. Based on the study results in FY2002 and the assessment for the development of a common components, including the EKV, the Risk Reduction EKV efforts were transitioned to the Ballistic Missile Defense System (BMDS) Interceptor Program Element (PE) 0603886C.

A number of other ground and sea-based risk reduction efforts are conducted in this project. AEGIS BMD risk reduction efforts, beginning in FY2003, consist of efforts in the areas of Standard Missile (SM)-3 Monolithic Divert Attitude Control System (DACS) Producibility, Integration and Ground Testing; Standard Missile (SM)-3 and Aegis Hardware-in-the-Loop (HIL)/Computer-in-the-Loop (CIL)/End-to-End (ETE) Ground Tests Simulation, BMDS Integration, and Wargaming Representation; SM-3 Parts Obsolescence; SM-3 Hardware Procurement Acceleration; Aegis Weapon System (AWS)/Vertical Launch System (VLS)/SM-3 Interfaces; Midcourse C/CM Techniques; and the RCF-1 Exercise. The Risk Reduction efforts are transitioned to the Program Element (PE) 0603890C Ballistic Missile Defense System Core beginning in FY 2004.

The BMDS Interceptor Risk Reduction efforts, beginning in FY2003, integrate and test the Generation II kill vehicle (KV) in preparation for a FY2004 hover stand integration into the Near-field Infrared Experiment (NFIRE) payload. Second generation KE Boost KV are mature variants of existing MDA developed KV components; they will be the first KV with the performance to reliably achieve boost phase intercept. The BMDS Interceptor Risk Reduction efforts are transitioned to the BMDS Interceptor PE 0603886C beginning in FY2004.

Counter/Countermeasures (C/CM):

The counter/countermeasures effort identifies, develops, and demonstrates solutions to improve the performance of missile defense projects against countermeasures suites. This requires a process to identify and prioritize solutions to credible countermeasures for integration into the program, and requires increased robustness in the test program to incorporate testing against a broad range of credible threats. Results of the testing program will result in the development of additional algorithms to mitigate credible threats. To minimize the programmatic impacts resulting from intelligence estimates, the program is transitioning from threat point-based design to capability-based approach. Solutions with potential to improve the capabilities against countermeasures will be incorporated.

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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through Blockupgrades into the Midcourse segment (both ground and sea) and will be provided to the overall Ballistic Missile Defense System (BMDS) through the Missile Defense Agency (MDA) Red-White-Blue team process. The Counter/Countermeasure effort is transitioned to Program Element (PE) 0603890C Ballistic Missile Defense System Core beginning with FY 2004.

BMD Information Management System:

The BMD Information Management System project supports the entire MDA Enterprise and includes the BMD Midcourse Defense Segment. The project focuses on the development, implementation, and operation of the MDA Information Management System to include decision support and collaboration tools to support the mission and business areas of the MDA. The BMDSIMS provides critical information for the planning, analysis, and accomplishment of the midcourse risk reduction activities. The BMD Information Management System effort transitions to PE 0603880C BMDS System Segment in FY 2003, and to PE 0603890C Ballistic Missile Defense System Core beginning in FY 2004.

B. Accomplishments/Planned Program

	FY2002	FY2003	FY2004	FY2005
Risk Reduction	1550	81369	0	0
RDT&E Articles (Quantity)				

FY2002 Accomplishments:

Complementary Exo-atmospheric Kill Vehicle (CEKV):

- Defined CEKV capability needs within the framework of a CEKV system capability requirements review,
- Conducted CEKV Capability Definition Contractor selection,
- Conducted design trades with integrated risk management assessments with Kill Vehicle (KV) system analyses,
- Developed assessment of Navy constraints in CEKV support, and
- Provided independent assessments of predicted performance for components and system critical functions.

FY2003 Planned Program:

Complementary Exo-atmospheric Kill Vehicle (CEKV):

- Based on the completed study conducted in FY 2002 the CEKV efforts are consolidated with other interceptor component efforts and transitioned to the Ballistic Missile Defense System (BMDS) Interceptor Program Element (PE) 0603886C.

Midcourse Ground and Sea -Based Risk Reduction:

- The Midcourse Ground and Sea -Based risk reduction efforts include activities in the areas of Standard Missile (SM) -3 Monolithic Divert Attitude Control System (DACS) Producibility, Integration and Ground Testing; SM -3 and Aegis HIL/CIL/End to End Ground Tests Simulation, BMDS Integration, and Wargaming Representation; SM -3 Parts Obsolescence; SM -3 Hardware Procurement Acceleration; AW S/VLS/SM-3 Interfaces; Aegis CCM Techniques; and the RCF -1 Exercise. Activities include:

- Conduct Monolithic Solid Divert and Attitude Control System (SDACS) ground and qualification tests.
- Participate in Ground -based Midcourse Defense (GMD) flight test (RCF -1) using an Aegis Destroyer to provide target tracking data to GMD and SM -3 Kinetic Warhead (KW) Infra -red (IR) - Seeker Captive Carry Test Bed in support of Ballistic Missile Defense System (BMDS) integration.
- Continue element/multi -element testing and verification of Aegis Weapon System (AWS)/SM -3 guided missile interface development & integration.
- Verify Shipboard system interfaces with End -to-End Distributed Development System (ETEDDS).

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MDA Exhibit R -2 ARDT&E Project Justification	Date February 2003
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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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- Continue Aegis Weapon System (AWS)/SM -3 guided missile interfaced development & integration.
- Continue Vertical Launching System (VLS)/SM -3 guided missile interfaced development & integration.
- Conduct SM -3 Hardware -in-the-Loop (HIL)/Computer -in-the-Loop (CIL)/End -to-End (ETE) ground tests and simulated engagements.

BMDS Interceptors Risk Reduction:

- Integrate and test the Generation II kill vehicle (KV) in preparation for a FY2004 hover test and integration into the Near -field Infrared Experiment (NFIRE) payload. Second generation KE Boost KV s are mature variants of existing MDA developed KV components; they will be the first KV s with the performance to reliably achieve boost phase intercept.

FY2004 Planned Program:

- Risk reduction effort to transition to the BMDS System Segment PE0603880C in FY2004.

FY2005 Planned Program:

- N/A

	FY2002	FY2003	FY2004	FY2005
Counter/Countermeasures	14410	13538	0	0
RDT&E Articles (Quantity)				

The MDA Countermeasures/Counter -Countermeasures program operates two adversary teams, each with a different threat perspective, to generate countermeasures to BMDS capabilities: a Red Team that is restricted to using only information on the BMDS available from open sources, and a Black Team that has complete access to all technical data on the BMDS in order to identify potential system vulnerabilities and technical concerns. A White Team, comprised of senior technical experts, reviews the adversary teams' concepts and provides MDA with an independent assessment of their feasibility and risk to the BMDS. The program's Blue Team develops capability improvements, also reviewed by the White Team, to counter the impact of high -risk vulnerabilities. The program funds initiatives to develop the Blue Team counter -countermeasures and demonstrate their readiness for insertion into the BMDS. The program budgets support to two cycles per year of countermeasure generation and development of counter -countermeasure responses.

FY2002 Accomplishments

- Participated in the MDA Blue Team assessment of the Black Team countermeasure that was presented to the MDA White Team (Jan 2002).
- Conducted an analysis of GMD system mitigation measures in response to MDA White Team countermeasure.
- Completed an analysis of the capability of GMD and supporting elements to discriminate targets in a countermeasure environment. Published results in the Discrimination Capabilities Reference Document (DCRD).
- Prepared an assessment of the GMDE KV Weapons Data Load requirements for 2004 and presented results to MDA White Team and MDA System Engineering.

FY2003 Planned Program:

- Update and maintain the open -sourced database on the BMDS and generate one set of countermeasures against the open source system architecture.
- Update the technical description of the baseline BMDS and generate one set of countermeasure with threat risk assessment.
- Initiate operations; perform one cycle of BMDS assessment; select areas for analysis; and identify system weaknesses, technical concerns, and block transition issues.
- Organize Element participation in program, analyze Red and Black Team countermeasures and propose counter -countermeasure mitigation strategies.
- Review adversary teams' countermeasures and Blue Team response; provide independent assessments of teams' products to MDA Director.

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MDA Exhibit R -2 ARDT&E Project Justification			Date February 2003	
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment		
<p>-Conduct Aegis BMD Counter -Countermeasure technique characterization. - Conduct Aegis BMD Counter -Countermeasure track feature design and discrimination.</p> <p>FY2004 Planned Program: -Counter/Countermeasure transition to the Ballistic Missile Defense System Core PE0603890C in FY20 04.</p> <p>FY2005 Planned Program: -N/A</p>				
	FY2002	FY2003	FY2004	FY2005
Engineering and BMD Information Management Systems Risk Reduction Support	6448	0	0	0
RDT&E Articles (Quantity)				
<p>Funding from this project included the MDA Data Centers and Virtual Data Centers who catalog, process and provide electronic access to engineering and technical data from many years of missile related flight tests, simulations, and experiments. The three (3) data centers consist of the Missile Defense Data Center (MDDC), the Advanced Missile Signature Center (AMSC), and the Joint National Integration Data Center (JNIC). This data is vital to the Midcourse Defense Segment projects and experiments. Additionally, data was processed which provides the capability to research and analyze and determine the lethality of missiles during flight tests and experiments. The BMD Web Portal effort under this project provides an economical means for the MDA community to share the investment in years of BMD -related data across the scientific and engineering community.</p> <p>FY2002 Accomplishments: -Designed WEB exchange with remote access capability. -A single WEB Portal was established. -Developed Web Portal Version 2.0. -Continued operation of the Data Centers and Virtual Data Centers. -Procured equipment to stand up the Information Assurance Operations Center (IAOC). -Established the Naval Surface Warfare Center as an MDA data center which consolidates, catalogs and provides electronic access to Aegis test data to the MDA community. -Integrated lethality database into the MDA Data Centers and provided electronic access across the MDA community.</p> <p>FY2003 Planned Program: -This Project transfers to Project 1050 BMD Information Management Systems in the System BMD Segment Program Element (PE) 0603880C for FY2003.</p> <p>FY2004 Planned Program: -N/A</p> <p>FY2005 Planned Program: -N/A</p>				

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MDA Exhibit R -2 ARDT&E Project Justification							Date February 2003			
APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment					
C. Other Program Funding Summary										
	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		
PE0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0604861C Theater High -Altitude Area Defense System -TMD -EMD	818632	888323	0	0	0	0	0	0		
PE0604865C Patriot PAC -3 Theater Missile Defense Acquisition -EMD	130630	176155	0	0	0	0	0	0		
PE0604867C Navy Area Theater Missile Defense -EMD	96121	0	0	0	0	0	0	0		
PE0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603869C Meads Concepts -Dem/Val	0	114781	0	0	0	0	0	0		
PE0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603883C Ballistic Missile Defense Boost Defense Segment	583463	718036	626264	653612	755163	665772	477109	354346		
PE0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE0605502C Small Business Innovative Research -MDA	145102	0	0	0	0	0	0	0		

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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D. Acquisition Strategy

The Missile Defense Agency (MDA) will follow a capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks.

The Segment Common Engineering & Integration project will include risk reduction activities for Ground and Sea-based Midcourse Defense projects and counter/countermeasures that are capability rather than threat based. MDA will participate in a countermeasures program that will focus on identifying threat countermeasures that may not yet be evident, but are physically plausible and technically feasible. The program will identify and develop solutions to improve the capability of ballistic missile defense projects to defeat those countermeasures. Solutions that successfully demonstrate an improvement in MDA project performance will be integrated into the block development program.

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MDAExhibitR -3RDT&EProjectCostAnalysis	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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I.Product DevelopmentCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
RiskReduction												
MidcourseRiskReduction	MIPR	NSWC/DD,VA		2625	1Q						2625	
MidcourseRiskReduction	SS/CPAF	JHU/APL,MD		7437	2Q						7437	
MidcourseRiskReduction	SS/CPAF	LM,NJ		10655	2Q						10655	
MidcourseRiskReduction	SS/CPAF	Raytheon,AZ		42743	2Q						42743	
Counter/Countermeasures												
Counter/Countermeasure	SS/CPAF	JHU/APL,MD		363	2Q						363	
Counter/Countermeasure	SS/CPAF	LM,NJ		3000	2Q						3000	
SubtotalProductDevelopment			0	66823							66823	

Remarks

II.SupportCostsCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
RiskReduction												
CEKV	Various		1550								1550	
MidcourseRiskReduction	MIPR	NAWC/CL,CA		400	1Q						400	
MidcourseRiskReduction	MIPR	NAWC/PM,CA		150	1Q						150	
MidcourseRiskReduction	SS/CPFF	JHU/APL,MD		1050	2Q						1050	
MidcourseRiskReduction	C/CPAF	Raytheon,AZ		200	2Q						200	
MidcourseRiskReduction	C/CPFF	SEG,VA		1000	2Q						1000	
MidcourseRiskReduction	MIPR	NSWC/DD,VA		914	1Q						914	
MidcourseRiskReduction	MIPR	NSWC/IH		700	1Q						700	
MidcourseRiskReduction	SS/FFRD C	MIT/LL,MA		850	2Q						850	
MidcourseRiskReduction	Various	Various		1748	2Q						1748	

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MDAExhibitR -3RDT&EProjectCostAnalysis							Date February2003				
APPROPRIATION/BUDGETACTIVITY				R-INOMENCLATURE							
4.AdvancedComponentDevelopmentandPrototypes(ACD&P)				0603882CBallisticMissileDefenseMidcourseDefenseSegment							
BMDSInterceptors	MIPR	NSWC/PHD/Port Hueneme,CA		520	1/2Q						520
BMDSInterceptors	SS/Other	RaytheonandNavy EA/Tucson,AZ		7932	1/2Q						7932
Counter/Countermeasures											
Counter/Countermeasures	SS/CPAF	Boeing/AL	7595								7595
Counter/Countermeasures	SS/CPAF	MITLincoln Labs/MA	3427								3427
Counter/Countermeasures	Various	Various	3388								3388
Counter/Countermeasures	FFRDC	Various		200	1/3Q						200
Counter/Countermeasures	CPFF	Various/VA		2525	1/3Q						2525
Counter/Countermeasures	MIPR	Various		4413	1/3Q						4413
Counter/Countermeasures	C/CPAF	LM,NJ		800	2Q						800
Counter/Countermeasures	C/CPFF	BAE,VA		500	1Q						500
Counter/Countermeasures	SS/CPFF	JHU/APL,MD		1025	2Q						1025
Counter/Countermeasures		Various		657	1Q						657
EngineeringandBMD InformationManagement SystemsRiskReduction Support											
BMDSInfoMgmtSys	C/CPAF	CSC/VA	1876	0							1876
BMDSInfoMgmtSys	MIPR	AMSC/AL	709	0							709
BMDSInfoMgmtSys	MIPR	MDDC/AL	1221	0							1221
BMDSInfoMgmtSys	MIPR	JNIC/CO	1776	0							1776
BMDSInfoMgmtSys	MIPR	NSWC/CA	200	0							200
BMDSInfoMgmtSys	Other	Various	666	0							666
SubtotalSupportCosts			22408	25584		0		0			47992
Remarks											

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MDAExhibitR -3RDT&EProjectCostAnalysis	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-INOMENCLATURE 0603882CBallisticM issileDefenseMidcourseDefenseSegment
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III.TestandEvaluationCost(\$inThousands)												
CostCategories:	Contract Method &Type	Performing Activity& Location	Total PYs Cost	FY2003 Cost	FY2003 Award Date	FY2004 Cost	FY2004 Award Date	FY2005 Cost	FY2005 Award Date	Costto Complete	Total Cost	Target Valueof Contract
RiskReduction	MIPR	CINCPACFLT,HI		500	1Q						500	
RiskReduction	MIPR	NSWC/Corona,CA		155	1Q						155	
RiskReduction	MIPR	NSWC/DD,VA		568	1Q						568	
RiskReduction	MIPR	NSWC/PHD,CA		795	1Q						795	
RiskReduction	SS/CPFF	JHU/APL,MD		200	2Q						200	
RiskReduction		Various		282	1Q						282	
SubtotalTestandEvaluation				2500							2500	

Remarks

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

Remarks

ProjectTotalCost			22408	94907		0		0			117315	
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Remarks

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MDAExhibitR -4ScheduleProfile	Date February2003
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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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FiscalYear	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Deliveries																																
BlackTeamCountermeasureConceptual Designs					▲			▲																								
BlueTeamCCMplansagainstRedand BlackTeamCM																																
RedTeamCountermeasureConceptual Designs								▲				▲																				
RiskReduction&Counter/Countermeasures																																
RiskReduction-CEKV:																																
AssessmentsofPredictedPerformance								▲																								
CEKVSystemRequirementsReview								▲																								
ConceptDevelopmentStart								▲																								
DevelopmentMilestones:																																
AEGISBMDVLS PDR								▲																								
AEGISBMDVLS CDR												▲																				
TestingMilestones:																																
AEGISBMDMonolithicDAC SMDU1								▲																								
AEGISBMDMonolithicDAC SMDU2												▲																				
AEGISBMDMonolithicDAC SFlight Qualification																▲																
GMDRCF1																																

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APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)	R-1NOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment
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ScheduleProfile	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
Deliveries								
BlackTeamCountermeasureConceptualDesigns		1Q,3Q						
BlueTeamCCMplansagainstRedandBlackTeamCM		3Q,4Q						
RedTeamCountermeasureConceptualDesigns		1Q,4Q						
RiskReduction&Counter/Countermeasures								
AssessmentsofPredictedPerformance	4Q							
CEKVSystemRequirementsReview	4Q							
ConceptDevelopmentStart	4Q							
DevelopmentMilestones:								
AegisBMDVLS PDR		2Q						
AegisBMDVLS CDR		4Q						
TestingMilestones:								
AEGISBMDMonolithicDACSM DU1		1Q						
AEGISBMDMonolithicDACSM DU2		2Q						
AEGISBMDMonolithicDACSFlyQualification		3Q						
GMDRCF1		4Q						

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
3090/0602 Program Operations	112116	63790	76302	44900	38226	43913	29521	29700
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Fiscal Years 2002 and 2003 are reflected in Project 3090 and Fiscal Years 2004 and out are in Project 0602.

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. There are requirements for this area 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 fluctuation 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 Operation efforts.

B. Accomplishments/Planned Program

	FY2002	FY2003	FY2004	FY2005
Personnel	36899	35199	27074	9880
RDT&E Articles (Quantity)				

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

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APPROPRIATION/BUDGET ACTIVITY 4. Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment					
		FY2002	FY2003	FY2004	FY2005					
Management Support		28298	15511	25652	22969					
RDT&E Articles (Quantity)										
Funds the contract SETAs support costs directly associated with Missile Defense Agency program - wide support organizations. This effort provides the funding for the Missile Defense Agency's executing agents (Army Space and Missile Defense Command, Army PEO -AMD, Air Force, and Navy) including government salaries & benefits, setas support, and various management/overhead costs.										
		FY2002	FY2003	FY2004	FY2005					
Fiscal Requirements		17217	4774	23576	12051					
RDT&E Articles (Quantity)										
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.										
		FY2002	FY2003	FY2004	FY2005					
Information Management/Information Technology (IM/IT)		29702	8306	0	0					
RDT&E Articles (Quantity)										
This effort pays for Information Management/Information Technology (IM/IT) requirements within the Missile Defense Agency. These requirements are removed to the Management Headquarters Program Element (PE) in Fiscal Years 2004 -2009.										
C. Other Program Funding Summary										
	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	To Complete	Total Cost
PE0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE0603883C Ballistic Missile Defense Boost Defense Segment	583463	718036	626264	653612	755163	665772	477109	354346		

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MDAExhibitR -2ARDT&EProjectJustification							Date February2003			
APPROPRIATION/BUDGETACTIVITY 4.AdvancedComponentDevelopmentandPrototypes(ACD&P)				R-INOMENCLATURE 0603882CBallisticMissileDefenseMidcourseDefenseSegment						
PE0603884CBallisticMissileDefense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE0603886CBallisticMissileDefense SystemInterceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE0603888CBallisticMissileDefenseTest andTargets	0	0	611522	711181	661416	643302	639839	672396		
PE0603869CMeasConcepts -Dem/Val	0	114781	0	0	0	0	0	0		
PE0603890CBallisticMissileDefense SystemEngineeringandIntegration	0	0	483996	522458	604445	628594	703055	706501		
PE0604861CTheaterHigh -AltitudeArea DefenseSystem -TMD -EMD	818632	888323	0	0	0	0	0	0		
PE0604865CPatriotPAC -3Theater Missile DefenseAcquisition -EMD	130630	176155	0	0	0	0	0	0		
PE0604867CNavyAreaTheaterMissile Defense -EMD	96121	0	0	0	0	0	0	0		
PE0605502CSmallBusinessInnovative Research -MDA	145102	0	0	0	0	0	0	0		
PE0901585CPentagonReservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE0901598CManagementHeadquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE0603889CBallisticMissileDefense Products	0	0	343644	384763	333636	343447	349335	360951		
PE0603175CBallisticMissileDefense Technology	145021	151130	240820	205791	200956	247990	287864	306472		