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Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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COST (\$ in Thousands)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	914,063	1,139,757	1,038,310	904,198	682,033	753,562	469,200
0907 Terminal High Altitude Area Defense (THAAD) Block 2008	745,801	991,007	942,457	694,496	473,926	21,300	0
0007 Terminal High Altitude Area Defense (THAAD) Block 2010	0	0	0	114,461	119,300	642,318	385,548
0401 Israeli Arrow Program	150,836	130,838	77,175	77,189	77,373	78,990	80,637
0806 PAC-3 Block 2006	0	0	1,600	1,000	0	0	0
0602 Program-Wide Support	17,426	17,912	17,078	17,052	11,434	10,954	3,015
Amount Included in PE 0904903D				-301,310	-124,697	-211,306	-22,000
Total PE Cost Reflected in R-1	914,063	1,139,757	1,038,310	602,888	557,336	542,256	447,200

These efforts include test interceptor hardware for flight and ground testing, targets and range operations to conduct 5 flight tests, Radar fabrication/assembly/integration/test and component qualification testing.

A. Mission Description and Budget Item Justification

As part of the total Ballistic Missile Defense System (BMDS), the Terminal Defense Segment (TDS) Program Element (PE) funds the terminal-related element portions of Blocks 2008 and 2010 and other Terminal-related mission area investment activities. The TDS elements and activities include Terminal High Altitude Area Defense (THAAD) and the Israeli Arrow Program. The BMDS elements in terminal defense pursue development and selective upgrades of interceptor defense capabilities that engage short to medium-range ballistic missiles in the late mid-course and terminal phase of their trajectory.

Consistent with the MDA block management framework, the THAAD system element consists of Blocks 2008 and 2010:

Block 2008:
THAAD spiral development has begun with the design and development of a significant, fundamental capability against short to medium-range Ballistic Missiles (BMs) and asymmetric threats inside and outside the atmosphere. Development through FY06 will lay a foundation for THAAD Interceptor Engage on THAAD Radar Engagement Sequence Groups (ESG) capability. This initial phase also provides the capability for other BMDS Elements (AEGIS BMD, PATRIOT) to conduct engagement sequences with THAAD communications data. The initial series of flight tests for the THAAD Interceptor Engage on THAAD Radar ESG begins in FY06 and continues into FY07 with a total of 8 flight tests. Development evolves to achieve a more robust THAAD Radar discrimination, advanced interceptor, fire control and launcher capabilities to facilitate communications to the BMDS and forward base engagement coordination with other BMDS elements. THAAD development efforts will provide

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future capability for other BMDS elements such as Standard Missile 3 (SM-3) Launch on THAAD Radar. THAAD Radar development continues a collaborative effort with MDA's Sensors Deputate to ensure commonality of the THAAD Radar. The second series of flight tests begins in FY07 and continues into FY09 with a total of 9 flight tests. The THAAD element has the flexibility to evolve to the MDA objective of putting the BMDS on alert and conducting concurrent testing and operations. Continued development will include improved survivability, crew operator training capability and remotely placed launcher for an improved defended area and defense against Intermediate Range Ballistic Missiles (IRBMs), capability to launch THAAD interceptors from other BMDS sensor elements and expanding the system's capability to provide THAAD sensor data to the BMDS. This adds the THAAD Interceptor Engage on THAAD Radar using a cue from other BMDS sensors. The Block 2008 development is the foundation for the acquisition and delivery of Block 2008 THAAD Fire Unit #1 to support operational assessment and fielding of a BMDS capability useful to the combatant commanders and services. The delivery of Fire Unit #1 consists of 24 interceptors, 3 launchers, 1 THAAD radar, and 1 THAAD fire control and communication (TFCC).

Block 2010:

This block continues the concept of a rapidly deployable configuration through enhanced sensor and interceptor capability as well as supporting strategic surveillance missions. Continued development enables a new ESG, SM-3 Launch on THAAD Radar and includes kill vehicle and booster improvements that significantly increase interceptor performance against long range threats. In short, Block 2010 provides the initiation of the next generation THAAD capability that provides rapidly mobile components to extend and deepen BMDS capability. Block 2010 continues the development of the THAAD System. This program has the flexibility to retrofit development assets, test the hardware capability to launch the THAAD Interceptor using data from a remote sensor before the threat enters the field of view of the THAAD radar; or provide for continuous manufacturing of Fire Unit hardware. In Block 2010, the THAAD Fire Unit #2 consisting of 24 interceptors, 3 launchers, 1 THAAD radar, and 1 TFCC will be delivered.

The Arrow system (developed jointly by the U.S. and Israel) is another one of the TDS' mission area investments and provides Israel an indigenous capability to defend against short and medium range ballistic missiles and helps ensure U.S. freedom of action in future contingencies. Arrow also provides protection against ballistic missile attacks to U.S. forces deployed to the region. The Arrow program consists of the following major efforts: The Arrow System Improvement Program (ASIP) is a block upgrade of the Arrow Weapon System to enhance its capabilities against evolving regional threats. The program also includes the development of Arrow co-manufacturing capability, coproduction of the interceptor and the enhancement of Arrow's interoperability with U.S. ballistic missile defense systems (BMDS) via a Joint Tactical Information Data System (JTIDS)/Link-16 common communication architecture. The ASIP will develop upgrades to the existing Arrow Weapon System to allow Arrow to address more stressing ballistic missile threats. Related Arrow activities include Caravan Flight test campaign in the U.S., the Israeli Test Bed (ITB),

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and studies via the Israeli Systems Architecture and Integration (ISA&I) effort that assess the Arrow performance relative to existing and emerging threats.

A.1 System Element Description

The five major components (Interceptors, Launchers, THAAD Radars, THAAD Fire Control and Communication (TFCC), and THAAD-specific support equipment) will be integrated into the THAAD element and the Ballistic Missile Defense System (BMDS). The THAAD interceptor is a certified round that is propelled by a single-stage, solid-propellant rocket booster. Its kill vehicle possesses a divert and attitude control system and an infrared seeker used in destroying its target through hit-to-kill technology. The THAAD Launcher consists of a U.S. Army M1120 Heavy Expanded Mobility Tactical Truck-Load Handling System variant that transports an integrated interceptor round pallet and supports and secures eight ready-to-launch interceptors. The THAAD Radar is an X-Band, solid state, phased array radar capable of tracking multiple threats and multiple interceptors during engagements. The THAAD Radar uses fence, volume, and cued search modes, and provides surveillance, acquisition, track, discrimination, interceptor communications, and hit assessment data collection for the fire control. The THAAD Radar hardware is a transportable system composed of the antenna equipment unit, electronics equipment unit, cooling equipment unit, and the prime power unit. The TFCC is composed of the Tactical Operations Station, the Launch Control Station, and the Station Support Group. These three components together are called the Tactical Station Group (TSG). A TFCC includes two TSGs. The TFCC provides the planning, control, coordination, execution, and communications necessary to fulfill the THAAD mission in a coherent and fully integrated fashion. It is interoperable with external air and interceptor defense and intelligence systems and agencies integrated into the BMDS.

THAAD provides rapidly deployable ground-based interceptor defense components that deepen, extend and complement the BMDS to any Combatant Commander to defeat ballistic missiles of all types and ranges while in all phases of flight. THAAD intercepts inside and outside the atmosphere making countermeasures difficult and significantly mitigates Weapons of Mass Destruction (WMD).

A.2 System Element Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS)

The Terminal Defense Elements provide the final opportunity to engage short to medium-range ballistic missiles not engaged or destroyed in the boost or mid-courses of trajectory. The THAAD, AEGIS BMD, and fielded Patriot Systems provide the only capability to defend deployed U.S. forces from short to medium-range ballistic missiles, and protect broadly dispersed assets and population centers or selected U.S. sites (Homeland Defense) from short to medium-range ballistic missile attacks. The THAAD element enhances the MDA Terminal Defense System (TDS) by deepening, complementing, and extending the BMDS battlespace and capability to engage and negate ballistic missiles and asymmetric threats in both the late mid-course (outside the atmosphere) and terminal phase (inside the atmosphere) of their trajectory. This adds significant capability to the BMDS as the threat missiles transition from the mid-course to terminal phase.

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The THAAD element contributes to the BMDS by providing two engagement sequences, THAAD interceptor engage on THAAD Radar and THAAD interceptor engage on THAAD Radar with a cue from Cobra Dane/Upgraded Early Warning Radars/Sea-Based X-Band Radar. When integrated into the BMDS with the BMDS Command Control/Battle Management Communications (C2BMC), AEGIS BMD and PATRIOT Systems, the rapidly deployable THAAD element improves the BMDS overall effectiveness by engaging interceptors as they transition from inside and outside the atmospheric flight.

A.3 Major System Element Goals

THAAD has goals that are synchronized with the overall MDA goals to meet the BMDS objectives in Blocks 2008/2010.

- Develop, test, and verify THAAD capability.
- Provide field and sustain THAAD capability for operational testing and BMDS defense operations.
- Continue component development to enhance integrated BMDS capability and efficiency.
- Test and verify enhanced integrated BMDS component capability in an increasingly complex BMDS test program.
- Provide field and sustain enhanced BMDS capabilities.
- Integrate THAAD into the BMDS International Strategy.
- Maintain a culture within THAAD that excels in a complex and uncertain environment.
- Achieve world class business processes and battle rhythm using lean, six sigma improvement techniques.

A.4 Major Events Schedule and Description

Major Event	Project	Timeframe	Description
Flight Test			
Testing Milestones			
Conduct FTT-1	0907	1Q FY 2006	• FTT-1 was successfully conducted on 22 Nov 06
Conduct FTT-2	0907	2Q FY 2006 - 3Q FY 2006	• 1st Integrated System Test - Virtual Target
Conduct FTT-3	0907	3Q FY 2006 - 4Q FY 2006	• Characterize seeker with unitary HERA target
Conduct FTT-4	0907	3Q FY 2006 - 1Q FY 2007	• Body-body intercept with separating HERA target
Conduct FTT-5	0907	4Q FY 2006 - 1Q FY 2007	• Low Endo Controlled Test Flight; Characterize missile flyout
Conduct FTT-6	0907	1Q FY 2007 - 3Q FY 2007	• High endo intercept of unitary target at medium aspect
Conduct FTT-7	0907	2Q FY 2007 - 4Q FY 2007	• Mid endo intercept of unitary target at low aspect
Conduct FTT-8	0907	3Q FY 2007 - 1Q FY 2008	• Exo intercept of unitary target at high aspect
Conduct FTT-9	0907	4Q FY 2007 - 2Q FY 2008	• Exo intercept of separating target at medium speed
Conduct FTT-10	0907	1Q FY 2008 - 2Q FY 2008	• Salvo interceptors, high endo intercept of separating target at low aspect
Conduct FTT-11	0907	2Q FY 2008 - 4Q FY 2008	• Mid endo intercept of separating target at high aspect

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Major Event	Project	Timeframe	Description
Conduct FTT-12	0907	3Q FY 2008 - 4Q FY 2008	• Exo intercept of complex separating target at low aspect
Conduct FTT-13	0907	4Q FY 2008 - 1Q FY 2009	• High endo intercept of complex separating target at high aspect
Conduct FTT-14 (DUAL)	0907	1Q FY 2009 - 2Q FY 2009	• Multiple simultaneous engagement of two targets
Conduct FTT-15	0907	1Q FY 2009 - 2Q FY 2009	• Mid endo intercept of complex separating target at mid aspect
Conduct FTT-16	0907	2Q FY 2009 - 3Q FY 2009	• Exo intercept of long range separating target
Conduct FTT-17	0907	3Q FY 2009 - 4Q FY 2009	• Exo intercept of long range separating target
Contract Activity			
Contractual Activities & Events			
Fire Unit I and II Contract Award	0907	1Q FY 2007	• Procure 48 Interceptors; 6 Launchers; 2 THAAD Radars; 2 THAAD Fire Control and Communication (TFCC) (4 Tactical Station Groups (TSGs))
Contractor Logistics Support (CLS)	0907	1Q FY 2008	• Maintenance and support to software that has been delivered to the field
Delivery			
Deliveries			
Fire Unit I	0907	3Q FY 2008 - 3Q FY 2009	• 24 Interceptors; 3 Launchers; 1 THAAD Radar; 1 THAAD Fire Control and Communication (TFCC) (2 Tactical Station Groups (TSGs))
Fire Unit II	0907	3Q FY 2009 - 4Q FY 2010	• 24 Interceptors; 3 Launchers; 1 THAAD Radar; 1 THAAD Fire Control and Communication (TFCC) (2 Tactical Station Groups (TSGs))

B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2006 PB)	928,388	1,143,610	1,034,676
Current President's Budget (FY 2007 PB)	914,063	1,139,757	1,038,310
Total Adjustments	-14,325	-3,853	3,634
Congressional Specific Program Adjustments	0	55,250	0
Congressional Undistributed Adjustments	0	-59,103	0
Reprogrammings	547	0	0
SBIR/STTR Transfer	-14,872	0	0
Adjustments to Budget Years	0	0	3,634

FY05 reduction of \$14.325 million includes the SBIR/STTR transfer and MDA reprogrammings.

FY06 reduction of \$3.853 million includes Congressional specific program adjustments (\$45.25 million for Arrow Co-Production and \$10.0 million for Short Range BMD) and a portion of the MDA Congressional undistributed adjustment.

FY07 increase of \$3.634 million includes \$1.6M for PAC-3 Block 2006 Debris Mitigation and overhead/infrastructure reductions.

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COST (\$ in Thousands)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0907 Terminal High Altitude Area Defense (THAAD) Block 2008	745,801	991,007	942,457	694,496	473,926	21,300	0
RDT&E Articles Qty	5	9	9	25	22	0	0

Note: THAAD (Project 0907): The ramp-up in FY06/FY07 restores work deferred to this timeframe due to a boost motor facility industrial accident. These efforts include test interceptor hardware for flight and ground testing, targets and range operations to conduct 5 flight tests, Radar fabrication/assembly/integration/test and component qualification testing.

RDT&E Articles: FY05 - Deliver 3 Launchers and 2 THAAD Fire Control and Communication (TFCC) Tactical Station Groups (TSGs); and Buy 6 Full-up Interceptors; 1 Launcher, and 1 THAAD Radar for Development Tests. FY06 - Deliver 8 Full-up Interceptors and 1 Launcher; and Buy 12 Full-up Interceptors and 4 TFCC TSGs for Development Test. FY07 - Deliver 7 Full-up Interceptors; 1 THAAD Radar and 1 TFCC TSG; and Buy 6 Full-up Interceptors and 1 Launcher for Development Tests, and 24 Interceptors; 3 Launchers; 2 TFCC TSGs and 1 THAAD Radar for Fire Unit #1. FY08 - Deliver 13 Full-up Interceptors; 3 TFCC TSGs and 1 Launcher for Development Tests and 3 Interceptors; 3 Launchers and 2 TFCC TSGs for Fire Unit #1. FY09 - Deliver 21 Interceptors and 1 THAAD Radar for Fire Unit #1.

A. Mission Description and Budget Item Justification

The Terminal High Altitude Area Defense (THAAD) is an element of the Terminal Defense Segment (TDS) of the Ballistic Missile Defense System (BMDS). The THAAD element provides the THAAD Interceptor Engage on THAAD Radar engagement sequence of the BMDS. THAAD enhances the TDS by deepening, complementing, and extending the BMDS battle-space and capability to engage ballistic targets in the late mid-course and terminal phases of their trajectory. THAAD will also be a surveillance sensor, providing sensor data to cue other elements of the BMDS. THAAD, in conjunction with the fielded Patriot System, provides the Terminal Defense Segment and supports the MDA objective of enhancing the BMDS capability. Five major components (Interceptors, Launchers, THAAD Radars, THAAD Fire Control and Communication (TFCC), and Support Equipment) will be integrated into the THAAD element and the BMDS.

Block 2008:

THAAD spiral development has begun with the design and development of a significant, fundamental capability against short to medium-range Ballistic Missiles (BMs) and asymmetric threats inside and outside the atmosphere. This encompasses the following: (1) Test interceptor with inside and outside the atmosphere algorithms; (2) THAAD Radar with Initial Discrimination Capability; and (3) TFCC with Limited Tactical Digital Information Link and Defense Design Planner. Development through FY06 will lay a foundation for THAAD Interceptor Engage on THAAD Radar Engagement Sequence Groups (ESG) capability. This initial phase also provides the capability for other BMDS Elements (AEGIS BMD, PATRIOT)

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<p>to conduct engagement sequences with THAAD data over Link-16. The initial series of flight tests for the THAAD Interceptor Engage on THAAD Radar ESG begins in FY06 and continues into FY07 with a total of 8 flight tests.</p> <p>Development evolves to achieve a more robust THAAD radar discrimination, intercept capability in stressing inside and outside the atmosphere battlespace; salvo firing doctrine; and the ability to operate in a full spectrum of tactical interceptor environments and survivability. To facilitate tactical employment by soldiers, it also includes TFCC embedded training, automated defense planning, and extensive interoperability using Link-16 and United States Message Text Format (USMTF) message set with BMDS and forward base engagement coordination with other BMDS elements. THAAD development efforts will provide future capability or other BMDS elements such as Standard Missile 3 (SM-3) Launch on THAAD Radar. THAAD Radar development continues a collaborative effort with MDA/SN to ensure commonality of the THAAD Radar. The second series of flight tests begins in FY07 and continues into FY09 with a total of 9 flight tests. The THAAD element has the flexibility to evolve to the MDA objective of putting the BMDS on alert and conducting concurrent testing and operations and performing logistics and sustainment; thereby, providing a Block 2006 THAAD capability to the BMDS. The THAAD Element will provide coordinated engagements with BMDS via the BMDS Command Control/Battle Management Communications (C2BMC).</p> <p>Block 2008 development culminates in demonstrated THAAD capabilities in both inside and outside the atmosphere battlespace against the full spectrum of adversarial capabilities. The Block 2008 development is the foundation for the acquisition and delivery of Block 2008 THAAD Fire Unit #1 to support operational assessment and fielding of a BMDS capability useful to the combatant commanders and services. In addition, development will include improved survivability, crew operator training capability and upgrades to provide for RF-linked launchers for improved defended area and defense against Intermediate Range Ballistic Missiles (IRBMs), capability to launch THAAD interceptors from other BMDS sensor elements and expanding the system's capability to provide THAAD sensor data to the BMDS. This adds the THAAD Interceptor Engage on THAAD Radar using a cue from other BMDS sensors. The delivery of Fire Unit #1 consists of 24 interceptors, 3 launchers, 1 THAAD Radar and 1 TFCC.</p>		

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B. Accomplishments/Planned Program

	FY 2005	FY 2006	FY 2007
Interceptor	325,317	424,268	234,765
RDT&E Articles (Quantity)	0	8	7

The THAAD Interceptor is a certified round that is propelled by a single-stage, solid-propellant rocket booster. Its kill vehicle possesses a divert and attitude control system and an infrared seeker used in destroying its target through hit-to-kill technology.

FY05 Accomplishments:

- Completed Environments Phase I and assembly qualification for flight testing
- Integrated final release of interceptor software in Systems Integration Lab (SIL) for initial flight test
- Prepared for Flight Test Program at White Sands Missile Range (WSMR)
- Delivered interceptor software for initial integrated element flight tests
- Continued upgrades to the interceptor software
- Initiated buy of 6 Full-up Interceptors

FY06 Planned Program:

RDT&E Articles: Deliver 8 Full-Up Interceptors

- Support 5 flight tests
- Support Flight Test Program at WSMR and Pacific Missile Range Facility (PMRF)
- Complete Interceptor Environments Phase II Ground Test
- Continue SIL Hardware in the Loop (HWIL) integration activities of hardware and software in preparation for flight testing
- Continue fabrication, assembly, and test of hardware for flight test
- Continue upgrades to the interceptor software
- Complete interceptor qualification testing
- Initiate fabrication, assembly, and test of interceptor hardware in preparation for Insensitive Munitions (IM) testing and missile rounds required for Interceptor Block Qualification Testing (BQT)
- Initiate early obsolescence upgrades to interceptor hardware

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- Initiate buy of 12 Full-Up Interceptors

FY07 Planned Program:

RDT&E Articles: Deliver 7 Full-Up Interceptors

- Support four flight tests
- Continue SIL HWIL integration activities of hardware and software in preparation for flight testing
- Continue fabrication, assembly, and test of hardware for flight test and BQT
- Complete Interceptor Block Process Validation
- Complete final release of interceptor software
- Initiate buy of 6 Full-up Interceptors

	FY 2005	FY 2006	FY 2007
THAAD Radar	153,751	145,964	74,276
RDT&E Articles (Quantity)	0	0	1

The THAAD Radar is a solid state, phased array radar capable of tracking multiple threats and multiple interceptors during engagements. The THAAD Radar uses fence, volume, and cued search modes, and provides surveillance, acquisition, track, discrimination, interceptor communications, and hit assessment data collection for the fire control. The THAAD Radar hardware is a transportable system composed of the antenna equipment unit, electronics equipment unit, cooling equipment unit, and the prime power unit.

FY05 Accomplishments:

- Integrated final release of THAAD Radar Software Build 4.1 in System Integration Lab (SIL) for initial flight tests
- Completed integration of THAAD Radar #1
- Continued development and conducted Design Readiness Review (DRR) of THAAD Radar Software Build 4.2
- Initiated design of tactical Prime Power Unit (PPU)
- Delivered THAAD Radar software for first integrated element test at White Sands Missile Range (WSMR)
- Continued upgrades to the THAAD Radar software
- Delivered Build 5 of the THAAD Radar Simulation Model
- Tracked targets of opportunity and dedicated THAAD Radar risk reduction flights

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<ul style="list-style-type: none">• Completed THAAD Radar metric calibration• Completed Alternating Current/Direct Current Qualification Test• Conducted THAAD Radar Block Process Validation• Initiated buy of one THAAD Radar (production of Transmit/Receive Modules and Transmit/Receive Integrated Multi-Channel Microwave Modules) <p>FY06 Planned Program:</p> <ul style="list-style-type: none">• Continue manufacturing and assembly of one THAAD Radar (Radar #2)• Continue Build 4.2 Software development• Continue development of PPU• Conduct PPU Critical Design Review and initiate build of first PPU• Track Targets of Opportunity• Continue THAAD Radar Requirements Verification• Support Flight Test program at WSMR and Pacific Missile Range Facility (PMRF)• Initiate software capability for DoD IT Standards Registry (DISR) <p>FY07 Planned Program:</p> <p>RDT&E Articles: Deliver 1 THAAD Radar</p> <ul style="list-style-type: none">• Complete integration of THAAD Radar #2 at WSMR• Initiate THAAD Radar Electromagnetic Environmental Effects (E3) testing at WSMR• Deliver Engineering Release of Build 4.2 Software• Support flight testing• Continue development of PPU• Deliver Final Release of Build 4.2 Software• Initiate software upgrades for expanding the system's capability to provide THAAD sensor data to the BMDS• Initiate build of second THAAD Radar PPU		

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	FY 2005	FY 2006	FY 2007
Launcher	21,875	16,132	24,629
RDT&E Articles (Quantity)	3	1	0
<p>The THAAD Launcher consists of a U.S. Army M1120 Heavy Expanded Mobility Tactical Truck-Load Handling System variant that transports an integrated missile round pallet and supports and secures eight ready-to-launch interceptors.</p> <p>FY05 Accomplishments: RDT&E Articles: Delivered 3 Launchers</p> <ul style="list-style-type: none"> • Integrated final release of Launcher Software Build 3 in System Integration Lab (SIL) for initial flight tests • Supported Short Hot Launch (SHotL) test • Supported element production planning and flight testing • Continued fabrication, assembly, and test of Launcher hardware • Delivered hardware and software to SIL Hardware-in-the-Loop (HWIL) activities for Launcher • Delivered launcher hardware to White Sands Missile Range (WSMR) for flight testing • Supported flight test program at WSMR • Continued development of Build 3.1 software upgrade • Delivered hardware to Pacific Missile Range Facility (PMRF) • Initiated buy of 1 Launcher <p>FY06 Planned Program: RDT&E Articles: Deliver 1 Launcher</p> <ul style="list-style-type: none"> • Continue SIL HWIL integration activities of hardware and software in preparation for flight testing • Support Fire Unit planning • Assist in standup of operations for Flight Testing at PMRF • Support Flight Test Program at WSMR and PMRF • Conduct software upgrade Design Readiness Review • Continue development of Build 3.1 Software upgrade 			

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- Continue development of Build 4.0 Software upgrade
- Deliver Launcher Build 3.1 Software in support of Flight Test 9 and beyond
- Support Launcher Block Qualification Test
- Complete Launcher Block Process Validation

FY07 Planned Program:

- Continue SIL HWIL integration activities of hardware and software in preparation for flight testing
- Support conduct of flight testing at PMRF
- Complete final release of Launcher software Build 4 and deliver to the SIL
- Continue to support Fire Unit development, fabrication and integration
- Initiate design and development Launcher hardware and software for Launch on Remote and Remoted Launcher capabilities
- Initiate buy of 1 Launcher

	FY 2005	FY 2006	FY 2007
THAAD Fire Control and Communication (TFCC) Tactical Station Groups (TSGs)	59,348	82,641	54,892
RDT&E Articles (Quantity)	2	0	1

The THAAD Fire Control and Communication (TFCC) is composed of the Tactical Operations Station, the Launch Control Station, and the Station Support Group. These three components together are called the Tactical Station Group. A TFCC includes two Tactical Station Groups. The TFCC provides the planning, control, coordination, execution, and communications necessary to fulfill the THAAD mission in a coherent and fully integrated fashion. It is interoperable with external air and interceptor defense and intelligence systems and agencies integrated into the Ballistic Missile Defense System (BMDS).

FY05 Accomplishments:

RDT&E Articles: Deliver 2 TFCC Tactical Station Groups (TSGs)

- Completed Build 4 TFCC flight test software and delivered to Master Software Development Library, System Integrated Laboratory (SIL) and White Sands Missile Range (WSMR) for Flight Test 2 preparation and testing
- Continued detailed design development and conducted Design Readiness Review of TFCC Software for Build 5
- Supported Flight Test Program preparation at WSMR and SIL

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<ul style="list-style-type: none">Completed upgrade to software development test tools to support Build 5 development <p>FY06 Planned Program:</p> <ul style="list-style-type: none">Complete Block Process Validation of TFCCSupport Flight Test Program at WSMR and Pacific Missile Range Facility (PMRF)Continue integration and test of TFCC hardwareMaintain software development environment and test toolsContinue development of TFCC Software Build 5Perform tactical software maintenance for TFCC Software Build 4Initiate early obsolescence upgrades to TFCC hardwareInitiate buy of 4 TFCC TSGs <p>FY07 Planned Program:</p> <p>RDT&E Articles: Deliver 1 TFCC TSG</p> <ul style="list-style-type: none">Continue fabrication, assembly, integration and test of TFCC hardwareComplete TFCC Software Build 5 Engineering Release and deliver to SIL for integrationContinue supporting flight testing at PMRFContinue TFCC Build 4 tactical software maintenanceInitiate software upgrades for Launch on Remote, Remoted Launchers and expanding the system's capability to provide THAAD sensor data to the BMDS		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment	
	FY 2005	FY 2006	FY 2007
Integrated Logistics Support (ILS)	21,019	45,383	66,476
RDT&E Articles (Quantity)	0	0	0
<p>Provides each THAAD component with all aspects of logistics support for all blocks of the program. Responsible for transportability of all THAAD system equipment and for ensuring the required Government Furnished Equipment (GFE) is available as required by contract. Additionally, works with the user in developing all aspects of training for the components and has a key role in the transition effort of the THAAD System to the Army.</p> <p>FY05 Accomplishments:</p> <ul style="list-style-type: none"> • Continued development of Interim Contractor Support System (ICSS) • Continued to conduct Soldier-in-the-Loop Training and training course development for soldier participation in flight test program • Supported flight and ground test program utilizing Contractor Logistics Support (CLS) at WSMR • Conducted System Operator Trainer Course • Continued development of Draft Integrated Electronic Training Manuals (IETM)/Electronic Training Manuals (ETM) • Continued development of Performance Based Logistics (PBL) strategy • Supported Peculiar Support Equipment (PSE) Battery Support Center (BSC) development • Updated Packaging, Handling, Storage and Transportation (PHS&T) documentation • Continued supportability analysis and LMI validation • Continued to procure GFE to support program requirements • Continued to process BOIP/Qualitative Quantitative Personnel Requirements Information (BOIP/QQPR) • Continued work to obtain Air Certification Approval for all THAAD Components • Updated Certificate of Equivalency for ground transport of Missile Round • Updated Interim Hazard Classification for ground transport of Missile Round • Completed Explosive Ordnance Disposal (EOD) procedures • Completed Supply Support Strategy • Completed Interim Instruction Facility <p>FY06 Planned Program:</p> <ul style="list-style-type: none"> • Support Flight Test program at WSMR and PMRF 			

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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment	
<ul style="list-style-type: none">• Continue development of the System Operator Trainer Course• Procure GFE for program requirements• Update Manpower Estimate Report• Update Emergency Activation Plan• Support the Fire Control Redesign• Continue update of the Supportability Strategy• Continue to process BOIP/Qualitative Quantitative Personnel Requirements Information (BOIP/QQPRI)• Update MANPRINT Management Plan and conduct MANPRINT Joint Working Group meetings <p>FY07 Planned Program:</p> <ul style="list-style-type: none">• Continue supporting Flight Test program at WSMR and PMRF• Continue procuring GFE to support program requirements• Conduct Operator/Maintainer and Data Collector Course• Continue to process BOIP/QQPRI• Update TM 60 EOD Publication• Initiate development of the Materiel Fielding Plan• Conduct Soldier-in-the-Loop Training• Review/approve training course material• Develop IETM task validation/verification plan		

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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment	
	FY 2005	FY 2006	FY 2007
System Test	65,255	133,259	158,603
RDT&E Articles (Quantity)	0	0	0
<p>Responsible for developing and executing all aspects of the THAAD program flight test objectives, ballistic interceptor target solutions, Live Fire Test and Evaluation (LFT&E) program, system flight test execution, government ground testing, range facility preparations, documentation requirements, data analysis and reporting.</p> <p>FY05 Accomplishments:</p> <ul style="list-style-type: none"> • Continued Pacific Missile Range Facility (PMRF) Activation • Prepared for Flight Tests at White Sands Missile Range (WSMR) • Continued planning for Block Qualification Test (BQT) • Continued interceptor Drop Test Planning • Continued planning for LFT&E program • Initiated transfer of Launch & Test Support Equipment (L&TSE) and range integration • Initiated component integration planning to support flight tests at PMRF • Initiated target integration for flight testing • Continued Test Planning and Range Operations for flight testing • Conducted System Requirements Review, Preliminary Design Review / Critical Design Review and Range Working Group meetings for target vehicles to support FTT-3 and FTT-4 flight tests • Integrated and tested FTT-3 and FTT-4 target vehicles • Refurbished ground equipment/test equipment associated with FTT-3 and FTT-4 target vehicles at range and contractor facility • Performed THAAD Radar Cross Section testing required for both mission configurations • Completed booster buy-off of boosters to support FTT-3 and FTT-4 flight tests <p>FY06 Planned Program:</p> <ul style="list-style-type: none"> • Continue target integration for flight testing • Complete L&TSE and range integration at PMRF • Continue Test Planning and Range Operations for PMRF flight testing 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2006
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment	
<ul style="list-style-type: none">• Initiate Flight Tests at WSMR• Perform Data Analysis on Flight Tests• Complete PMRF range activation and initiate flight testing• Continue planning Fire Unit #1 Operational Assessment• Initiate planning for Element demonstrations• Conduct the risk reduction testing and THAAD Radar Characterization missions at PMRF• Transport target hardware to WSMR to support FTT-3 and FTT-4 flight tests• Launch ballistic interceptor target hardware in support of FTT-3 and FTT-4 flight tests per the integrated master test schedule• Conduct post mission analysis and retrograde of residual hardware for FTT-3 and FTT-4 flight tests• Modify the Foreign Military Asset (FMA) ballistic interceptor target launch vehicles to support flight tests FTT-6, FTT-7, and FTT-8• Conduct range integration activities with the PMRF in support of flight tests FTT-6, FTT-7, and FTT-8• Initiate support for use of Mobile Launch Platform in support of flight tests FTT-6, FTT-7, and FTT-8• Initiate the procurement of Castor IVB Boosters to support flight tests FTT-9, FTT-10, and FTT-11• Develop reentry vehicles to support flight tests FTT-9, FTT-10 and FTT-11 <p>FY07 Planned Program:</p> <ul style="list-style-type: none">• Continue flight tests at PMRF• Continue performing Data Analysis on Flight Tests• Initiate component BQT efforts• Continue LFT&E testing• Continue target integration for flight testing• Continue Test Planning and Range Operations for flight testing• Continue planning Fire Unit 1 Operational Assessment		

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment	
	FY 2005	FY 2006	FY 2007
Weapon Sys Engr & Integ Team	55,859	87,198	92,764
RDT&E Articles (Quantity)	0	0	0
<p>Responsible for all engineering efforts required to translate approved Ballistic Missile Defense System (BMDS) capabilities and requirements into operationally suitable THAAD capability blocks. Coordinates and conducts requirements analysis, system integration and verification, software engineering to include independent verification and validation, configuration management, and BMDS integration for each THAAD component by working through the Integrated Process Team (IPT) process on a balanced contractor-government team. Additionally, responsible for all aspects of risk management and security for the THAAD program.</p> <p>FY05 Accomplishments:</p> <ul style="list-style-type: none"> • Initiated System Integration Laboratory (SIL) Hardware-in-the-Loop (HWIL) environment development • Performed system analysis scenarios and designs • Performed Parametric Performance Assessments • Supported Flight Test mission planning • Completed integration of an autonomous THAAD system in the SIL HWIL facility • Supported pre-flight testing in the SIL HWIL facility • Supported Flight Test Program at White Sands Missile Range (WSMR) • Supported Flight Test data analysis • Initialized SIL HWIL integration of Final Release of Interceptor Software Build 6.0, Launcher Software Build 3, THAAD Fire Control and Communication (TFCC) Software Build 4 and THAAD Radar Software Build 4.1 for integrated flight testing • Provided Weapon System Engineering support for the THAAD Radar Software Build 4.2 and TFCC Software Build 5, Interceptor Software Build 7.0, and Launcher Software Build 4 Design Readiness Reviews • Continued participating in wargames, exercises and interoperability demonstrations • Planning the integration and implementation of THAAD and its components in the BMDS System Engineering & Integration • Continued program integration with BMDS System Engineering & Integration 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2006
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment	
FY06 Planned Program: <ul style="list-style-type: none">• Support Flight Test Program at WSMR and Pacific Missile Range Facility (PMRF)• Continue supporting pre-flight testing in the SIL HWIL facility• Continue supporting SIL and Flight Test data analysis• Continue validation of the end-to-end digital simulation using Flight Test data• Continue participating in wargames, exercises and interoperability demonstrations• Perform System analysis in support of flight test• Perform Parametric Performance Assessments• Updated assessment of Element capability using comprehensive, end-to-end digital simulation• Support Flight Test mission planning• Plan integration of THAAD into BMDS Test Bed		
FY07 Planned Program: <ul style="list-style-type: none">• Support pre-flight testing in the SIL HWIL facility• Perform Systems Engineering support for Launch on Remote, Remoted Launchers, and expanding the system's capability to provide THAAD sensor data to the BMDS• Continue System Analysis in support of flight testing• Perform System Engineering for Fire Unit• Continue validation of the end-to-end digital simulation using Flight test data• Initiate element characterization analysis• Continue planning the integration and implementation of THAAD and its components in the BMDS Test Bed• Continue flight test mission planning• Initial SIL HWIL integration of Final Release of Interceptor Software Build 7.0, Launcher Software Build 4, Fire Control Software Build 5 and THAAD Radar Software Build 4.2 for integrated flight testing		

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APPROPRIATION/BUDGET ACTIVITY		R-1 NOMENCLATURE	
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		0603881C Ballistic Missile Defense Terminal Defense Segment	
	FY 2005	FY 2006	FY 2007
Fire Unit	0	0	184,398
RDT&E Articles (Quantity)	0	0	0
<p>The THAAD Project Office will award a contract in first quarter FY 07 for the manufacturing of a THAAD Fire Unit. The total amount of hardware manufactured under this contract will include 24 interceptors, 3 launchers, 1 THAAD Radar, 1 THAAD Fire Control and Communication (TFCC) (2 Tactical Station Groups (TSGs)), and the required peculiar and common support equipment. It is anticipated that the fire unit will be fielded in FY 09 and, following operational testing, will be transitioned to the U.S. Army.</p> <p>FY07 Planned Program:</p> <ul style="list-style-type: none"> • Initiate the fabrication and assembly of Interceptors, Launchers, THAAD Radar, TFCC and initial spares for the Block 2008 Fire Unit • Develop Materiel Fielding Plan • Conduct Fielding Staging Site Preparation • Develop Materiel Release Documents • Update all training materials • Procure Government Furnished Equipment (GFE) to support Fire Unit • Procure Battery Support Center (BSC) and Integrated Contract Support System (ICSS) • Develop and procure of Tactical Active Leak Sensor System (ALSS) • Develop Objective Instructional Facility • Plan for System Integration Check-Out (SICO)/New Equipment Training (NET) • Develop Automated Information System (AIS) for Automated Identification Technology (AIT) • Establish New Materiel Introductory Team (NMIT)/NET Team • Initiate buy of 24 Interceptors, 3 Launchers, 2 TFCC TSGs, and 1 THAAD Radar for a total of 30 RDT&E Articles 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment	
	FY 2005	FY 2006	FY 2007
Program Management	43,377	56,162	51,654
RDT&E Articles (Quantity)	0	0	0
<p>Program Management provides support functions across the program such as strategic planning, program integration, cost estimating, contracting, and financial management to include preparation of financial statements, reimbursement of financial services provided by Defense Finance Accounting Service (DFAS), internal review and audit, earned-value management, and program assessments.</p> <p>FY05 Accomplishments:</p> <ul style="list-style-type: none"> • Provided management, leadership, and planning for all Block 2008 activities • Provided salaries, travel, training, supplies, rental and project-wide support • Supported the preparation of Flight Test Program at White Sands Missile Range (WSMR) • Continued to provide guidance and management to program • Provided project-wide programmatic support <p>FY06 Planned Program:</p> <ul style="list-style-type: none"> • Provide management, leadership, and planning for all Block 2008 activities • Provide salaries, travel, training, supplies, rental and project-wide support • Support Flight Test Program at WSMR and Pacific Missile Range Facility (PMRF) • Continue to provide guidance and management to program • Continue project-wide programmatic support <p>FY07 Planned Program:</p> <ul style="list-style-type: none"> • Provide management, leadership, and planning for all Block 2008 activities • Continue to support Flight Test Program at PMRF • Continue to provide guidance and management to program • Provide salaries, travel, training and project-wide support • Continue project-wide programmatic support 			

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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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C. Other Program Funding Summary								
	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	224,016	162,297	197,707	192,034	203,946	212,106	218,002	1,410,108
PE 0603879C Advanced Concepts, Evaluations and Systems	166,996	0	0	0	0	0	0	166,996
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	4,487,253	2,489,257	2,605,567	2,444,109	2,065,344	1,979,612	1,617,059	17,688,201
PE 0603883C Ballistic Missile Defense Boost Defense Segment	472,543	490,863	632,028	567,493	493,842	615,859	988,731	4,261,359
PE 0603884C Ballistic Missile Defense Sensors	567,193	294,283	536,428	554,012	623,089	306,965	217,590	3,099,560
PE 0603886C Ballistic Missile Defense System Interceptors	272,064	215,952	438,287	634,709	1,138,597	1,391,301	1,499,204	5,590,114
PE 0603888C Ballistic Missile Defense Test and Targets	700,570	632,107	692,209	614,174	649,766	668,624	678,105	4,635,555
PE 0603889C Ballistic Missile Defense Products	384,935	394,652	521,640	517,507	534,429	530,893	531,219	3,415,275
PE 0603890C Ballistic Missile Defense System Core	398,852	420,151	558,231	557,880	561,003	548,354	554,731	3,599,202
PE 0603891C Special Programs - MDA	0	324,522	421,303	836,168	1,110,695	1,027,677	1,260,497	4,980,862
PE 0603892C Ballistic Missile Defense Aegis	0	939,066	990,565	857,832	900,265	933,815	816,206	5,437,749
PE 0603893C Space Tracking & Surveillance System	0	239,998	361,515	429,679	640,367	787,008	818,606	3,277,173
PE 0603894C Multiple Kill Vehicle	0	83,000	220,370	273,805	307,566	309,284	115,119	1,309,144
PE 0603895C BMD System Space Program	0	0	0	45,000	150,000	166,000	206,100	567,100
PE 0605502C Small Business Innovative Research - MDA	138,907	0	0	0	0	0	0	138,907
PE 0901585C Pentagon Reservation	11,001	17,386	15,586	6,058	6,376	4,490	4,725	65,622
PE 0901598C Management Headquarters - MDA	110,662	99,327	89,314	86,821	86,244	70,600	70,714	613,682
PE Air Force Military Personnel	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
PE Air Force Operations and Maintenance	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
PE Air Force Other Procurement	0	2,400	1,453	11,279	386	17,710	25,709	58,937
PE Army Operations and Maintenance	49,597	66,974	68,246	69,809	71,472	73,325	75,230	474,653
PE Army Natl Guard Military Personnel	21,000	17,648	24,432	24,952	25,591	25,591	25,591	164,805
PE Army Natl Guard Operations and Maintenance	0	155	151	150	154	164	167	941
PE Navy Operations and Maintenance	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PE PAC-3/MEADS Missile Procurement	574,972	581,924	578,579	660,584	616,020	509,032	738,679	4,259,790
PE PAC-3/MEADS RDT&E	344,978	304,973	336,959	465,395	521,791	522,418	502,961	2,999,475

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D. Acquisition Strategy

THAAD follows the capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks. The THAAD Block 2008 development program is already on contract with Lockheed Martin Space Systems Company (LMSSC), Sunnyvale, CA. The Cost Plus Award Fee (CPAF) contract was awarded August 4, 2000. In FY07 a Sole Source, CPAF Contract will be awarded to LMSSC for development upgrades to add THAAD capability to Launch on Remote, Remoted Launchers and report non-threatening ballistic interceptors. The Fire Unit #1 contract is targeted to be awarded in FY07 and will consist of the following: (1) Sole Source, CPAF/Cost Plus Incentive Fee (CPIF) contract to Raytheon for THAAD Radar hardware and (2) Sole Source, CPAF/CPIF contract to LMSSC as the element integrator and to procure interceptor, launcher, THAAD fire control and communication and Peculiar Support Equipment hardware. In addition, there will be a sole source Indefinite Delivery, Indefinite Quantity (ID/IQ) Delivery Order Contract to LMSSC for Contractor Logistics Support for the Fire Unit targeted to be awarded in FY08. Block 2008 development activities, as well as the acquisition of the Fire Unit, will provide a significant capability to protect deployed U.S. and allied forces, specified civilian population centers, or selected sites within the U.S.

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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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I. Product Development Cost (\$ in Thousands)								
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Interceptor								
Prime Contract	SS/CPAF	LMSSC/ CA, TX, AL, MA, NH, IL, FL & MD	943,666	399,339	1/2Q	189,742	1/2Q	1,532,747
THAAD Radar								
Prime Contract	SS/CPAF	LMSSC and Raytheon/ Huntsville, AL; Bedford, MA, & Texas	422,708	140,637	1/2Q	60,686	1/2Q	624,031
Launcher								
Prime Contract	SS/CPAF	LMSSC/ Huntsville, AL & Lufkin, TX	63,975	14,732	1/2Q	20,843	1/2Q	99,550
THAAD Fire Control and Communication (TFCC) Tactical Station Groups (TSGs)								
Prime Contract	SS/CPAF	LMSSC and Raytheon/ Huntsville, AL	158,553	78,486	1/2Q	45,855	1/2Q	282,894
Integrated Logistics Support (ILS)								
Prime Contract	SS/CPAF	LMSSC/ Huntsville, AL	33,778	27,247	1/2Q	37,326	1/2Q	98,351
System Test								
Prime Contract	SS/CPAF	LMSSC/ Sunnyvale, CA; Huntsville, AL; NM & HI	83,765	51,302	1/2Q	56,126	1/2Q	191,193
Weapon Sys Engr & Integ Team								

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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Prime Contract	SS/CPAF	LMSSC/ Sunnyvale, CA & Huntsville, AL	99,771	55,645	1/2Q	55,701	1/2Q	211,117
Fire Unit								
Prime Contract	SS	LMSSC & Raytheon/ CA, TX, AL, MA, NH, IL, FL & MD	0	0	N/A	167,643	1/2Q	167,643
Program Management								
Prime Contract	SS/CPAF	LMSSC/ Sunnyvale, CA	79,605	32,957	1/2Q	24,187	1/2Q	136,749
Subtotal Product Development			1,885,821	800,345		658,109		3344275

Remarks

II. Support Costs Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Interceptor								
SETA	C	Multiple to include BAE, TSI & L3/ Huntsville, AL & Salt Lake City, UT	15,244	14,353	1/2Q	13,772	1/2Q	43,369
OGA	MIPR	Multiple to include RDEC & SMDC/ Huntsville, AL	20,539	10,576	1/2Q	10,487	1/2Q	41,602
MDA Program Support	C	MDA/ Arlington, VA	7,888	0	N/A	20,764	1/2Q	28,652
THAAD Radar								

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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
SETA	C	Multiple to include Dynetics & GA Tech/ Huntsville, AL and GA	6,100	2,264	1/2Q	3,300	1/2Q	11,664
OGA	MIPR	Multiple to include CECOM, RDEC & SMDC/ Ft. Monmouth NJ and Huntsville, AL	8,994	3,063	1/2Q	4,028	1/2Q	16,085
MDA Program Support	C	MDA/ Arlington, VA	3,175	0	N/A	6,262	1/2Q	9,437
Launcher								
SETA	C/FFP	Dynetics/ Huntsville, AL	2,302	661	1/2Q	724	1/2Q	3,687
OGA	MIPR	RDEC & SMDC/ Huntsville, AL	3,011	739	1/2Q	1,045	1/2Q	4,795
MDA Program Support	C	MDA/ Arlington, VA	477	0	N/A	2,017	1/2Q	2,494
THAAD Fire Control and Communication (TFCC) Tactical Station Groups (TSGs)								
SETA	C	Multiple to include CSC & Dynetics/ Silver Spring, MD & Huntsville, AL	2,517	1,948	1/2Q	2,011	1/2Q	6,476
OGA	MIPR	Multiple to include NRDEC, RDEC & SMDC/ Natick MA & Huntsville, AL	9,875	2,207	1/2Q	2,305	1/2Q	14,387

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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment			
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
MDA Program Support	C	MDA/ Arlington, VA	1,315	0	N/A	4,721	1/2Q	6,036
Integrated Logistics Support (ILS)								
SETA	C	Multiple to include Dynetics, TSA & BAE/ Huntsville, AL & Rockville, MD	5,853	1,844	1/2Q	2,029	1/2Q	9,726
OGA	MIPR	Multiple to include IMMC & USAADASCH/ Huntsville, AL & Ft. Bliss	21,346	16,292	1/2Q	23,848	1/2Q	61,486
MDA Program Support	C	MDA/ Arlington, VA	285	0	N/A	3,273	1/2Q	3,558
System Test								
OGA	MIPR	Multiple to include WSMR, PMRF, ATEC, RDEC & SMDC/ NM, HI, VA, & Huntsville, AL	31,644	15,995	1/2Q	17,970	1/2Q	65,609
MDA Program Support	C	MDA/ Arlington, VA	742	0	N/A	5,570	1/2Q	6,312
SETA	C/Various	Multiple/ AL	0	5,590	1/2Q	6,040	1/2Q	11,630
Weapon Sys Engr & Integ Team								

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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment				
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award/Oblg Date	FY 2007 Cost	FY 2007 Award/Oblg Date	Total Cost
SETA	C	Multiple to include Dynetics, TSA and L3/ Huntsville, AL & Salt Lake City, UT	23,561	18,187	1/2Q	18,914	1/2Q	60,662
OGA	MIPR	Multiple to include RDEC & SMDC/ Huntsville, AL	40,642	13,366	1/2Q	13,900	1/2Q	67,908
MDA Program Support	C	MDA/ Arlington, VA	781	0	N/A	4,249	1/2Q	5,030
Fire Unit								
OGA	MIPR	Multiples to include TACOM/CECOM/ USAADASCH/ Warren, MI; Ft. Monmouth, NJ; Ft. Bliss TX	0	0	N/A	16,755	1/2Q	16,755
Program Management								
SETA	C	Multiple to include Dynetics, BAE, & L3/ Huntsville, AL Rockville, MD & Salt Lake City, UT	22,051	9,566	1/2Q	9,591	1/2Q	41,208
MDA Program Support	C	MDA/ Arlington, VA	494	0	N/A	3,718	1/2Q	4,212
Subtotal Support Costs			228,836	116,651		197,293		542780
Remarks								

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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III. Test and Evaluation Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
System Test								
Government Test Planning/Targets	MIPR	Multiple to include WSMR, PMRF & SMDC/ NM, HI & Huntsville, AL	58,894	60,372	1/2Q	72,897	1/2Q	192,163
Subtotal Test and Evaluation			58,894	60,372		72,897		192163

Remarks

IV. Management Services Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Program Management								
Internal Operating Budget	MIPR	THAAD/ Huntsville, AL	41,460	13,639	1/2Q	14,158	1/2Q	69,257
Subtotal Management Services			41,460	13,639		14,158		69257

Remarks

Project Total Cost			2,215,011	991,007		942,457		4,148,475
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Remarks

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

Date
February 2006

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

R-1 NOMENCLATURE
0603881C Ballistic Missile Defense Terminal Defense Segment

Fiscal Year	2005				2006				2007				2008				2009				2010				2011								
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
Testing Milestones																																	
Conduct FTT-1					▲																												
Conduct FTT-2						▲	▲																										
Conduct FTT-3							▲	▲																									
Conduct FTT-4							▲	▲	▲	▲																							
Conduct FTT-5								▲	▲																								
Conduct FTT-6									▲	▲	▲																						
Conduct FTT-7										▲	▲	▲																					
Conduct FTT-8											▲	▲	▲																				
Conduct FTT-9												▲	▲	▲																			
Conduct FTT-10													▲	▲																			
Conduct FTT-11														▲	▲	▲																	
Conduct FTT-12															▲	▲																	
Conduct FTT-13																▲	▲																

Legend

▲	Significant Event (complete)	▲	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲	Complete Activity	▲	Planned Activity

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

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

R-1 NOMENCLATURE
0603881C Ballistic Missile Defense Terminal Defense Segment

Fiscal Year	2005				2006				2007				2008				2009				2010				2011							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
BLOCK 2008																																
FTT-1 Interceptor Delivered to WSMR					▲																											
Soldier-in-the-Loop Training Course 2						▲																										
FTT-2 Interceptor Delivered to WSMR						▲																										
FTT-3 Interceptor Delivered to WSMR						▲																										
Pacific Missile Range Facility Activation						▲																										
FTT-4 Interceptor Delivered to WSMR							▲																									
FTT-5 Interceptor Delivered to WSMR							▲																									
FTT-6 Interceptor Delivered to Range								▲																								
FTT-7 Interceptor Delivered to Range								▲																								
FTT-8 Interceptor Delivered to Range									▲																							
FTT-9 Interceptor Delivered to Range									▲																							
THAAD Radar B4.2 S/W Formal Rel Integ at SIL											▲																					
THAAD Radar #2 Delivered to WSMR for Integ											▲																					

Legend

	Significant Event (complete)		Significant Event (planned)
	Milestone Decision (complete)		Milestone Decision (planned)
	Element Test (complete)		Element Test (planned)
	System Level Test (complete)		System Level Test (planned)
	Complete Activity		Planned Activity

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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Fiscal Year	2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
BLOCK 2008																												
THAAD Radar #2 Integration Complete at WSMR												▲																
FTT-10 Interceptors (2) Del to Range											▲	▲																
FTT-11 Interceptor Delivered to Range											▲																	
Interceptor S/W Build 7.0 Final Rel Integ at SIL												▲																
Launcher Build 4 S/W Final Release Integ at SIL												▲																
FTT-12 Interceptor Delivered												▲																
Insensitive Munitions/Hazards Testing												▲	▲	▲	▲													
Fire Control and Comm B5 S/W Final Rel at SIL												▲																
THAAD Radar #2 E3 Testing Complete														▲														
Deliver Prime Power Unit (PPU) #1														▲														
FTT-13 Interceptor Delivered														▲														
FTT-14 Interceptors (2) Del to Range															▲													
THAAD Radar #2 Avail for Block Qual Test														▲														

Legend

<ul style="list-style-type: none"> ▲ Significant Event (complete) ★ Milestone Decision (complete) ◆ Element Test (complete) ◊ System Level Test (complete) ▲ Complete Activity 	<ul style="list-style-type: none"> ▲ Significant Event (planned) ★ Milestone Decision (planned) ◆ Element Test (planned) ◊ System Level Test (planned) ▲ Planned Activity
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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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Fiscal Year	2005				2006				2007				2008				2009				2010				2011			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
BLOCK 2008																												
FTT-15 Interceptor Delivered														▲														
THAAD Radar Data Collection Mission #2														▲														
THAAD Radar Prime Power Unit #2 Delivered															▲													
FTT-16 Interceptor Delivered																				▲								
THAAD Radar B4.2 Formal Maintenance Rel																				▲								
FTT-17 Interceptor Delivered																				▲								
Element Demonstrations																				▲	—	▲						
Element Weapon System Verification																					▲							
Contractual Activities & Events																												
Contractor Logistics Support (CLS)															▲													
Fire Unit I and II Contract Award									▲																			

Legend

▲	Significant Event (complete)	▲	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲—▲	Complete Activity	▲—▲	Planned Activity

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment			
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Testing Milestones							
Conduct FTT-1		1Q					
Conduct FTT-2		2Q-3Q					
Conduct FTT-3		3Q-4Q					
Conduct FTT-4		3Q-4Q	1Q				
Conduct FTT-5		4Q	1Q				
Conduct FTT-6			1Q-3Q				
Conduct FTT-7			2Q-4Q				
Conduct FTT-8			3Q-4Q	1Q			
Conduct FTT-9			4Q	1Q-2Q			
Conduct FTT-10				1Q-2Q			
Conduct FTT-11				2Q-4Q			
Conduct FTT-12				3Q-4Q			
Conduct FTT-13				4Q	1Q		
Conduct FTT-14 (DUAL)					1Q-2Q		
Conduct FTT-15					1Q-2Q		
Conduct FTT-16					2Q-3Q		
Conduct FTT-17					3Q-4Q		
BLOCK 2008							
Fire Control and Communication Delivered to WSMR	2Q						
Launcher Delivered to WSMR	2Q						
THAAD Radar #1 Integ and Test Complete	2Q						
THAAD Radar B4.2 S/W Critical Design Rev (CDR)	2Q						
Fire Control and Comm S/W B4 Final Rel at SIL	3Q						
FTT-2 Interceptor S/W Final Rel Integ at SIL	3Q						
THAAD Radar S/W B4.1 Formal Rel Integ at SIL	3Q						
Launcher S/W Build 3 Final Release Integ at SIL	4Q						
FTT-1 Interceptor Delivered to WSMR		1Q					
Soldier-in-the-Loop Training Course 2		2Q					

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment			
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
FTT-2 Interceptor Delivered to WSMR		2Q					
FTT-3 Interceptor Delivered to WSMR		2Q					
Pacific Missile Range Facility Activation		2Q					
FTT-4 Interceptor Delivered to WSMR		3Q					
FTT-5 Interceptor Delivered to WSMR		3Q					
FTT-6 Interceptor Delivered to Range		4Q					
FTT-7 Interceptor Delivered to Range		4Q					
FTT-8 Interceptor Delivered to Range			1Q				
FTT-9 Interceptor Delivered to Range			1Q				
THAAD Radar B4.2 S/W Formal Rel Integ at SIL			3Q				
THAAD Radar #2 Delivered to WSMR for Integ			3Q				
THAAD Radar #2 Integration Complete at WSMR			3Q				
FTT-10 Interceptors (2) Del to Range			2Q-3Q				
FTT-11 Interceptor Delivered to Range			3Q				
Interceptor S/W Build 7.0 Final Rel Integ at SIL			4Q				
Launcher Build 4 S/W Final Release Integ at SIL			4Q				
FTT-12 Interceptor Delivered			4Q				
Insensitive Munitions/Hazards Testing			4Q	1Q-3Q			
Fire Control and Comm B5 S/W Final Rel at SIL			4Q				
THAAD Radar #2 E3 Testing Complete				1Q			
Deliver Prime Power Unit (PPU) #1				1Q			
FTT-13 Interceptor Delivered				1Q			
Fire Control and Comm Block Qual Test (BQT)			3Q-4Q	1Q			
FTT-14 Interceptors (2) Del to Range				2Q			
THAAD Radar #2 Avail for Block Qual Test				1Q			
FTT-15 Interceptor Delivered				2Q			
THAAD Radar Data Collection Mission #2				2Q			
THAAD Radar Prime Power Unit #2 Delivered				4Q			
FTT-16 Interceptor Delivered					1Q		
THAAD Radar B4.2 Formal Maintenance Rel					1Q		
FTT-17 Interceptor Delivered					1Q		

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment			
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Element Demonstrations					2Q-4Q		
Element Weapon System Verification					3Q		
Launcher S/W B3 Eng Release Integrated at SIL	1Q						
Kill Vehicle (KV) Flight Qual Tests	2Q						
Interceptor Environments Phase I	2Q						
FTT-2 Interceptor S/W Engr Rel Integrated at SIL		2Q					
THAAD Radar B4.2 S/W Engr Release Integ at SIL		4Q					
Fire Control and Comm Critical Design Review	4Q						
Launcher Block Qualification Test (BQT)			2Q-4Q	1Q-4Q	1Q		
Interceptor S/W B7.0 Engr Rel Integ at SIL			1Q				
Launcher B4 S/W Engr Release Integrated at SIL			4Q				
Interceptor Block Qualification Test			4Q	1Q-2Q			
THAAD Radar Block Qualification Test (BQT)				2Q-4Q			
Deliveries							
Fire Unit I				3Q-4Q	1Q-3Q		
Fire Unit II					3Q-4Q	1Q-4Q	
Contractual Activities & Events							
Contractor Logistics Support (CLS)				1Q			
Fire Unit I and II Contract Award			1Q				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2006	
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment			
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COST (\$ in Thousands)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0007 Terminal High Altitude Area Defense (THAAD) Block 2010	0	0	0	114,461	119,300	642,318	385,548
RDT&E Articles Qty	0	0	0	0	10	20	0

Note: RDT&E Articles for Fire Unit #2: FY08 - Buy 24 Interceptors and 1 THAAD Radar. FY09 - Buy 3 Launchers, and 2 TFCC Tactical Station Groups (TSGs). FY09 - Deliver 10 Interceptors. FY10 - Deliver 14 Interceptors; 3 Launchers; 2 TFCC TSGs and 1 THAAD Radar.

A. Mission Description and Budget Item Justification

The Terminal High Altitude Area Defense (THAAD) is an element of the Terminal Defense Segment (TDS) of the Ballistic Missile Defense System (BMDS). The Terminal Defense Elements provide the final opportunity to engage all ranges of ballistic missiles not engaged or destroyed in the boost or mid-course phase of trajectory. Block 2010 THAAD further enhances the MDA TDS by deepening, complementing, and extending the BMDS battlespace and capability to engage and negate ballistic missiles and asymmetric threats in both the late mid-course and terminal phases of their trajectory. The Block 2010 THAAD highly mobile capability provides BMDS the ability to defend against all ranges of ballistic missiles and asymmetric threat; and protects U.S. and allied armed forces, broadly dispersed assets and population centers and selected U.S. sites (Homeland Defense) against ballistic missile attacks. The Block 2010 THAAD Element provides coordinated engagements with BMDS via the BMDS Command and Control Battle Management Communications (C2BMC) network. THAAD, in conjunction with the fielded Patriot System, provides the Terminal Defense layer. Five major components (Interceptors, Launcher, THAAD Radar, THAAD Fire Control and Communication (TFCC), and THAAD-specific Support Equipment) will be integrated into the THAAD element and BMDS. THAAD follows the MDA's capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks. The program addresses MDA System Engineering and Integration gap analysis of Engagement Sequence Groups (ESGs), identifying and documenting both element and component capabilities.

Block 2010:

Block 2010 is the next incremental capability delivered as part of THAAD's evolutionary acquisition/development strategy. This block continues the concept of a rapidly deployable configuration to support the TDS mission as well as supporting the strategic surveillance, TFCC missions through Block 2010 enhanced sensor and interceptor capability. Block 2010 leverages Block 2008 development by initiating development of kill vehicle and booster improvements that significantly increase performance of inside and outside the atmosphere intercepts against long range threats. In short, Block 2010 provides the initiation of the next generation THAAD capability that provides rapidly mobile components to extend and deepen BMDS capability against all ballistic missile threats. Block 2010 continues the development of the THAAD System and adds the SM-3 launch on THAAD Radar ESG. This program has the flexibility to retrofit development assets, test the hardware capability to launch the THAAD Interceptor using data

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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from a remote sensor before the threat enters the field of view of the THAAD Radar; or provide for continuous manufacturing of Fire Unit hardware. In Block 2010, the THAAD Fire Unit #2 consisting of 24 interceptors, 3 launchers, 1 THAAD Radar and 1 TFCC will be delivered.

C. Other Program Funding Summary

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	224,016	162,297	197,707	192,034	203,946	212,106	218,002	1,410,108
PE 0603879C Advanced Concepts, Evaluations and Systems	166,996	0	0	0	0	0	0	166,996
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	4,487,253	2,489,257	2,605,567	2,444,109	2,065,344	1,979,612	1,617,059	17,688,201
PE 0603883C Ballistic Missile Defense Boost Defense Segment	472,543	490,863	632,028	567,493	493,842	615,859	988,731	4,261,359
PE 0603884C Ballistic Missile Defense Sensors	567,193	294,283	536,428	554,012	623,089	306,965	217,590	3,099,560
PE 0603886C Ballistic Missile Defense System Interceptors	272,064	215,952	438,287	634,709	1,138,597	1,391,301	1,499,204	5,590,114
PE 0603888C Ballistic Missile Defense Test and Targets	700,570	632,107	692,209	614,174	649,766	668,624	678,105	4,635,555
PE 0603889C Ballistic Missile Defense Products	384,935	394,652	521,640	517,507	534,429	530,893	531,219	3,415,275
PE 0603890C Ballistic Missile Defense System Core	398,852	420,151	558,231	557,880	561,003	548,354	554,731	3,599,202
PE 0603891C Special Programs - MDA	0	324,522	421,303	836,168	1,110,695	1,027,677	1,260,497	4,980,862
PE 0603892C Ballistic Missile Defense Aegis	0	939,066	990,565	857,832	900,265	933,815	816,206	5,437,749
PE 0603893C Space Tracking & Surveillance System	0	239,998	361,515	429,679	640,367	787,008	818,606	3,277,173
PE 0603894C Multiple Kill Vehicle	0	83,000	220,370	273,805	307,566	309,284	115,119	1,309,144
PE 0603895C BMD System Space Program	0	0	0	45,000	150,000	166,000	206,100	567,100
PE 0605502C Small Business Innovative Research - MDA	138,907	0	0	0	0	0	0	138,907
PE 0901585C Pentagon Reservation	11,001	17,386	15,586	6,058	6,376	4,490	4,725	65,622
PE 0901598C Management Headquarters - MDA	110,662	99,327	89,314	86,821	86,244	70,600	70,714	613,682
PE Air Force Military Personnel	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
PE Air Force Operations and Maintenance	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
PE Air Force Other Procurement	0	2,400	1,453	11,279	386	17,710	25,709	58,937
PE Army Operations and Maintenance	49,597	66,974	68,246	69,809	71,472	73,325	75,230	474,653
PE Army Natl Guard Military Personnel	21,000	17,648	24,432	24,952	25,591	25,591	25,591	164,805
PE Army Natl Guard Operations and Maintenance	0	155	151	150	154	164	167	941
PE Navy Operations and Maintenance	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2006		
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment				
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	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE PAC-3/MEADS Missile Procurement	574,972	581,924	578,579	660,584	616,020	509,032	738,679	4,259,790
PE PAC-3/MEADS RDT&E	344,978	304,973	336,959	465,395	521,791	522,418	502,961	2,999,475

D. Acquisition Strategy

THAAD follows 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. Block 2010 development activities could be used to provide a significant capability to protect deployed U.S. and allied forces, dispersed assets, specified population centers, or wide areas of the U.S. The Block 2010 Acquisition Strategy is still being developed. Block 2010 development activities, as well as the delivery of the Fire Unit, will provide a significant capability to protect deployed U.S. and allied forces, specified civilian population centers, or selected sites within the U.S.

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2006	
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment			
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Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Program Milestones							
Block 10/12 Authority to Proceed (ATP)				1Q			
Component PDRs Complete						2Q	
Element Preliminary Design Review (PDR)						3Q	

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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COST (\$ in Thousands)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0401 Israeli Arrow Program	150,836	130,838	77,175	77,189	77,373	78,990	80,637
RDT&E Articles Qty	43	32	8	5	0	0	0

A. Mission Description and Budget Item Justification

This project provides funding for the Arrow Weapon System (AWS) development, to include the Arrow System Improvement Program (ASIP), Co-production of Arrow Intercept Missiles, Israeli Systems Architecture and Integration (ISA&I) studies to assess Arrow's effectiveness against emerging threats, and Israeli Test Bed (ITB) experiments to evaluate human-in-the-loop battle management and command, control, and communications. The Arrow weapon system provides Israel an indigenous capability to defend against short and medium range ballistic missiles and helps ensure U.S. freedom of action in future contingencies. Arrow also provides protection against ballistic missile attacks to U.S. forces deployed to the region. In addition to the geo-strategic goals of the Arrow cooperative effort, the United States derives considerable technical benefit from its participation in these projects. Technologies cooperatively developed under these projects provide risk reduction and alternative technologies for U.S. ballistic missile defense programs as well as phenomenology and kill assessment data. U.S. participation in the Arrow development effort also ensures interoperability of the Arrow and the Israeli Missile Defense System with deployed U.S. missile defense assets. The ASIP effort will enhance the performance of the AWS to defeat longer-range and more robust ballistic missile threats expected to be introduced in the Middle East in the near future. The ASIP tested the existing AWS configuration at a U.S. test range against today's existing to verify its baseline performance. Testing of the enhanced AWS in the U.S. against longer range threats is planned for FY08. The ITB and ISA&I efforts will continue to support AWS and ASIP development as well as to define future missile defense architectures to maintain pace with emerging threats.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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<u>B. Accomplishments/Planned Program</u>			
	FY 2005	FY 2006	FY 2007
Arrow System Improvement Program (ASIP)	55,000	56,213	55,702
RDT&E Articles (Quantity)	0	2	2

The Arrow System Improvement Program (ASIP) is a cooperative effort conducted under the ASIP International Agreement. The Arrow System Improvement Program commenced on March 13, 2001 and will run through September 2007. ASIP is a follow-on effort to the ADP to assure that Arrow retains system effectiveness against evolving longer-range, more robust regional TBM threats.

FY05 Accomplishments:

- Continued ASIP Phase II to develop and test technologies to improve Arrow Weapon System performance to defend Israel for emerging TBM threats.
- Continued enhancing Arrow interoperability development and validation to include engagement coordination.
- Completed highly successful Juniper Cobra 05 Joint Exercise.

FY06 Planned Program:

RDT&E Articles: (Two Missile Total) Block 3 Arrow test missile for intercept testing and a Block 3.5 Arrow test missile for intercept testing.

- Complete ASIP Phase II to develop activities to improve Arrow Weapon System performance to defend Israel for emerging ballistic missile threats.
- Initiate verification and validation, Phase III of the ASIP program.
- Conduct ASIP System Critical Design Review.
- Conduct Arrow flight tests in Israel.
- Continue enhancing Arrow interoperability development and validation to include engagement coordination.

FY07 Planned Program:

RDT&E Articles: (2 Missiles) One Block 4.0 Arrow II test missile for Flyout testing and One Block 4.0 Arrow II test missile for intercept testing.

- Conduct Block 3.5/4.0 Arrow flight tests in Israel.
- Conduct Joint Interoperability Exercise Juniper Cobra with Israel and U.S. forces.
- Continue enhancing Arrow interoperability development and validation to include engagement coordination.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment	
	FY 2005	FY 2006	FY 2007
Israeli Test Bed (ITB)	3,535	3,535	3,535
RDT&E Articles (Quantity)	0	0	0
<p>The Israeli Test Bed (ITB) is a cooperative effort conducted under the Theater Ballistic Missile Defense Test Bed Memorandum of Agreement between the U.S. and Israel. The ITB program commenced on 30 March 1989. The ITB is a large scale human-in-the-loop (HIL) modeling and simulation facility for the purpose of developing, analyzing, and evaluating candidate architectures, battle management concepts, and engagement algorithms. The principal ITB facility resides at Tadiran Systems Division in Holon, Israel. A second ITB capability is operational at the U.S. Army's Space and Missile Defense Command in Huntsville, Alabama.</p> <p>FY05 Accomplishments:</p> <ul style="list-style-type: none"> • Provided software enhancements in ITB for experiments conducted in FY05 and for those planned in the future • Conducted ITB experiments in FY05 • Some of the FY05 ITB experiments supported the development of an optimal combined OPLAN and CSOPs between Israel and the US • Conducted an ITB experiment for evaluation of tools for enhancement of AWS BMC • Developed and completed SRBM enhancements in ITB and conducted an experiment to explore potential BMC concepts <p>FY06 Planned Program:</p> <ul style="list-style-type: none"> • Provide software enhancements in ITB for experiments to be conducted in FY06 and for those planned in FY07 • Conduct planned ITB experiments in FY06 • An ITB experiment is planned to evaluate ASIP performance specifications against future threats and assess Arrow enhanced interoperability between Israeli and U.S. missile defense systems • Conduct a preparation exercise for a 2007 live exercise • Development and testing of potential expanded IS / US BMC3 tools for information sharing and coordination in combined missile defense operations • Expansion of SRBM models to evaluate tactics and requirements • ITB model expansion and conduct of regional defense experiment • Complete code transfer from ADA to C++, C#; to enhance future development of ITB 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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FY07 Planned Program:

- Design, Code, and Integrate software enhancements in ITB for experiments to be conducted in FY07 and for those planned in FY08
- Design, Conduct and Provide analysis on ITB experiments in FY07
- Use expanded models of new concepts and systems for SRBM and regional defense during combined Live exercise, and support revised OPLANs and CSOPs as necessary
- Expansion of ITB Citron Tree BMC operational concept models for regional defense
- Development of tools, interfaces and tactics for SRBMD systems
- Evaluation of regional defense concepts and impacts on interoperability
- Proceed on plan to further modularize ITB to bring greater capability and flexibility to US/Israeli users

	FY 2005	FY 2006	FY 2007
Israeli Systems Architecture and Integration (ISA&I)	2,041	2,080	2,147
RDT&E Articles (Quantity)	0	0	0

The Israeli Systems Architecture and Integration (ISA&I) program is a cooperative, jointly funded effort by MDA and the Israeli Ministry of Defense (IMOD) that provides analyses and options for the Arrow Weapon System (AWS) and Israeli National Missile Defense architecture. Program objectives are to assess the ballistic missile threats, provide analyses and architecture options, assess missile defense system robustness and issues, and assess Israeli and U.S. missile defense interoperability issues. The ISA&I began in FY 00 to analyze enhancements to the AWS that would be necessary for the system to maintain a robust capability against evolving regional threats. The ISA&I effort is contracted by MDA to WALES, Ltd, an Israeli consulting firm.

FY05 Accomplishments:

- Assessed IMDS performance against emerging regional ballistic missile threats.
- Refined growth path options necessary for the Arrow missile defense system to remain an effective ballistic missile defense for the State of Israel.
- Evaluated Israeli architecture studies to assess near-term U.S. missile defense systems and their impact on contributing to future Israeli missile defense architectures.

FY06 Planned Program:

- Assess IMDS performance against emerging regional ballistic missile threats.
- Refine growth path options necessary for the Arrow missile defense system to remain an effective ballistic missile defense for the State of Israel.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment	
<ul style="list-style-type: none"> Evaluate Israeli architecture studies to assess near-term U.S. missile defense systems and their impact on contributing to future Israeli missile defense architectures. <p>FY07 Planned Program:</p> <ul style="list-style-type: none"> Assess IMDS performance against emerging regional ballistic missile threats. Refine growth path options necessary for the Arrow missile defense system to remain an effective ballistic missile defense for the State of Israel. Evaluate Israeli architecture studies to assess near-term U.S. missile defense systems and their impact on contributing to future Israeli missile defense architectures. 			
	FY 2005	FY 2006	FY 2007
Program Support	740	788	791
RDT&E Articles (Quantity)	0	0	0
<p>The program support task encompasses activities that support but are not part of the U.S./Israeli cooperative programs. These activities include the documentation of foreground and background data rights for ASIP, ITB, ADP, and legacy programs; security support to include development and maintenance of security plans and classification guides; and analysis and engineering support of the ISA&I and ITB programs. It also provides for contractor support and expertise in MDA/IS.</p> <p>FY05 Accomplishments:</p> <ul style="list-style-type: none"> Continued documentation of background/foreground data rights for ASIP, Arrow co-production, and ITB. Maintained security plans and classification guides. Managed and support ITB modifications and experiments. Supported Israeli and U.S. Missile Defense System integration and related test activities. <p>FY06 Planned Program:</p> <ul style="list-style-type: none"> Continue documentation of background/foreground data rights for ASIP, Arrow co-production, and ITB. Maintain security plans and classification guides. Manage and support ITB modifications and experiments. Support Israeli and U.S. Missile Defense System integration and related test activities. 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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FY07 Planned Program:

- Continue documentation of background/foreground data rights for ASIP, Arrow co-production, and ITB.
- Maintain security plans and classification guides.
- Manage and support ITB modifications and experiments.
- Support Israeli and U.S. Missile Defense System integration and related test activities.

	FY 2005	FY 2006	FY 2007
Arrow Missile Production	89,520	58,222	13,000
RDT&E Articles (Quantity)	43	30	6

The co-manufacturing project will further enhance the Arrow Weapon System by establishing a capability in the United States and Israel to co-produce additional Arrow missiles or components of such missiles. The goals of the Co-production effort are to create the ability to accelerate production of Arrow missiles to meet Israel's defense requirements and advance the U.S. industrial and technology base in defensive ballistic missile Producibility.

FY05 Accomplishments:

- Completed booster static fire test in Israel..
- Initiated integration of U.S. produced components in Israel..
- Integrated first Arrow II Interceptor with U.S. co-produced components in Israel

FY06 Planned Program:

- Produce cooperatively Arrow missiles to meet Israel's defense requirements. Contract Option I to be exercised and production begins.
- Conduct sustainer static fire test.
- Execute Contract Options II and III for production.

FY07 Planned Program:

- Produce cooperatively Arrow missiles to meet Israel's defense requirements.
- Complete Option I production.
- Execute Contract Options IV and V.
- Initiate Option IV production.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2006	
APPROPRIATION/BUDGET ACTIVITY		R-1 NOMENCLATURE	
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		0603881C Ballistic Missile Defense Terminal Defense Segment	
	FY 2005	FY 2006	FY 2007
Short Range Ballistic Missile Defense Study	0	10,000	2,000
RDT&E Articles (Quantity)	0	0	0
<p>Israel's initiative for a joint 18 month definition/risk reduction phase for developing a low cost SRBMD capability as an enhancement to the Arrow Weapon System. Israel has a need for a wide area active defense system against the current and growing threat to Israeli civilians from short range, relatively low tech and inexpensive ballistic missiles. The current Israeli BMDS (Patriot and Arrow) have capability against some of these short range missile threats but do not provide a cost effective defense.</p> <p>FY05 Accomplishments:</p> <ul style="list-style-type: none"> IMDO has completed a survey of Israeli industry concepts and has selected two candidates for further evaluation <p>FY06 Planned Program:</p> <ul style="list-style-type: none"> IMDO/MDA downselect to one candidates for further evaluation (Mar 06) <p>FY07 Planned Program:</p> <ul style="list-style-type: none"> TBD based on final results of the FY06 study and MDA decision for US Requirement 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2006		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment				
C. Other Program Funding Summary								
	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	224,016	162,297	197,707	192,034	203,946	212,106	218,002	1,410,108
PE 0603879C Advanced Concepts, Evaluations and Systems	166,996	0	0	0	0	0	0	166,996
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	4,487,253	2,489,257	2,605,567	2,444,109	2,065,344	1,979,612	1,617,059	17,688,201
PE 0603883C Ballistic Missile Defense Boost Defense Segment	472,543	490,863	632,028	567,493	493,842	615,859	988,731	4,261,359
PE 0603884C Ballistic Missile Defense Sensors	567,193	294,283	536,428	554,012	623,089	306,965	217,590	3,099,560
PE 0603886C Ballistic Missile Defense System Interceptors	272,064	215,952	438,287	634,709	1,138,597	1,391,301	1,499,204	5,590,114
PE 0603888C Ballistic Missile Defense Test and Targets	700,570	632,107	692,209	614,174	649,766	668,624	678,105	4,635,555
PE 0603889C Ballistic Missile Defense Products	384,935	394,652	521,640	517,507	534,429	530,893	531,219	3,415,275
PE 0603890C Ballistic Missile Defense System Core	398,852	420,151	558,231	557,880	561,003	548,354	554,731	3,599,202
PE 0603891C Special Programs - MDA	0	324,522	421,303	836,168	1,110,695	1,027,677	1,260,497	4,980,862
PE 0603892C Ballistic Missile Defense Aegis	0	939,066	990,565	857,832	900,265	933,815	816,206	5,437,749
PE 0603893C Space Tracking & Surveillance System	0	239,998	361,515	429,679	640,367	787,008	818,606	3,277,173
PE 0603894C Multiple Kill Vehicle	0	83,000	220,370	273,805	307,566	309,284	115,119	1,309,144
PE 0603895C BMD System Space Program	0	0	0	45,000	150,000	166,000	206,100	567,100
PE 0605502C Small Business Innovative Research - MDA	138,907	0	0	0	0	0	0	138,907
PE 0901585C Pentagon Reservation	11,001	17,386	15,586	6,058	6,376	4,490	4,725	65,622
PE 0901598C Management Headquarters - MDA	110,662	99,327	89,314	86,821	86,244	70,600	70,714	613,682
PE Air Force Military Personnel	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
PE Air Force Operations and Maintenance	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
PE Air Force Other Procurement	0	2,400	1,453	11,279	386	17,710	25,709	58,937
PE Army Operations and Maintenance	49,597	66,974	68,246	69,809	71,472	73,325	75,230	474,653
PE Army Natl Guard Military Personnel	21,000	17,648	24,432	24,952	25,591	25,591	25,591	164,805
PE Army Natl Guard Operations and Maintenance	0	155	151	150	154	164	167	941
PE Navy Operations and Maintenance	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PE PAC-3/MEADS Missile Procurement	574,972	581,924	578,579	660,584	616,020	509,032	738,679	4,259,790
PE PAC-3/MEADS RDT&E	344,978	304,973	336,959	465,395	521,791	522,418	502,961	2,999,475

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israeli, the Arrow acquisition strategy doesn't fall under any normal DoD Acquisition Strategy. The program is managed by an Israeli Co-Program Manager and an, equal in responsibility, US Co-Program Manager. All Arrow contracts are on a cost-share basis with Israeli, normally 50/50. Note that half of the Israeli share is from non-financial contributions like facilities and personal. With ASIP, Israel Ministry of Defense (IMoD) contracts on behalf of U.S. government to IAI and other ASIP contractors. MDA Targets Office contracts for production and instrumentation of targets for U.S. flight testing. Additionally with Arrow Missile Production, IMoD contracts on behalf of U.S. government to IAI. IAI then subcontracts to Boeing for manufacture of U.S. components. IAI manufactures Israeli components and performs final assembly. For the Israeli Test Bed, Space and Missiles Defense Command (SMDC) Huntsville contracts directly with Tadiran while IMoD provides additional funds to SMDC. Finally, MDA contracts directly with WALES, Ltd for the Israeli System Architecture and Integration.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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I. Product Development Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Arrow System Improvement Program (ASIP)								
Arrow System Improvement Program (ASIP)	FFP	IAI/ Israel	267,404	56,213	1Q	55,702	1Q	379,319
Israeli Test Bed (ITB)								
Israeli Test Bed (ITB)	FFP	Tadiran/ Israel	12,670	3,535	1Q	3,535	1Q	19,740
Israeli Systems Architecture and Integration (ISA&I)								
Israeli Systems Architecture and Integration (ISA&I)	FFP	Wales, Ltd/ Israel	7,462	2,080	1Q	2,147	1Q	11,689
Arrow Missile Production								
Arrow Missile Production	FFP	IAI&Boeing/ Israel&AL	162,260	58,222	2Q	13,000	2Q	233,482
Short Range Ballistic Missile Defense Study								
Short Range Ballistic Missile Defense Study	FFP	IMDO/ Israel	0	10,000	2Q	2,000	N/A	12,000
Subtotal Product Development			449,796	130,050		76,384		656,230

Remarks

II. Support Costs Cost (\$ in Thousands)

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

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award/ Oblg Date	FY 2007 Cost	FY 2007 Award/ Oblg Date	Total Cost
Program Support	FFP	Various/ Ala/Va	6,702	788	1Q	791	1Q	8,281
Subtotal Support Costs			6,702	788		791		8281

Remarks

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

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

Remarks

IV. Management Services Cost (\$ in Thousands)

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

Remarks

Project Total Cost			456,498	130,838		77,175		664,511
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Remarks

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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Fiscal Year	2005				2006				2007				2008				2009				2010				2011																																		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																															
Integrated Flight Test																																																											
ASIP Flight Tests in Israel					▲		▲		▲		▲		▲																																														
Enhanced Arrow Tests in U.S.															▲	▲																																											
Other																																																											
Missile Defense Architecture Assessment	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲																																											
Communications																																																											
Interoperability Tests					▲						▲				▲																																												
Interoperability Field Demonstration		▲									▲								▲																																								
Program Milestones																																																											
ITB Experiments (Three each year)	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲																																											
ASIP Phase II	▲	▲	▲	▲	▲	▲	▲	▲																																																			
ASIP Phase III													▲	▲	▲	▲																																											
ASIP Follow-On Feasibility Study													▲	▲	▲	▲																																											
ASIP Follow-On Development																	▲	▲	▲	▲																																							
Production Milestones																																																											
Arrow Co-Production	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲																																							
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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment			
Schedule Profile	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Integrated Flight Test							
ASIP Flight Tests in Israel		1Q,3Q	1Q,3Q				
Enhanced Arrow Tests in U.S.				3Q-4Q			
Other							
Missile Defense Architecture Assessment	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q			
Communications							
Interoperability Tests		1Q,4Q	4Q	4Q			
Interoperability Field Demonstration	2Q		2Q		2Q		
Program Milestones							
ITB Experiments (Three each year)	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q		
ASIP Phase II	1Q-4Q	1Q-4Q	1Q-3Q				
ASIP Phase III				1Q-4Q			
ASIP Follow-On Feasibility Study				1Q-3Q			
ASIP Follow-On Development				4Q	1Q-4Q		
Production Milestones							
Arrow Co-Production	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-2Q	

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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COST (\$ in Thousands)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0806 PAC-3 Block 2006	0	0	1,600	1,000	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Upper Tier BM intercepts produce multiple debris tracks that increase radar loading for Lower Tier Missile Defense systems and may potentially lead to missile wastage if debris tracks are engaged. Currently fielded systems must mitigate Upper Tier Intercept Debris effects.

This effort will enable the PAC-3 element of the BMDS to manage radar resources effectively as well as preventing missile wastage on debris created by BMDS Upper Tier elements engagements, enabling a more effective management of BMDS battlespace.

B. Accomplishments/Planned Program

	FY 2005	FY 2006	FY 2007
PAC-3 Debris Mitigation	0	0	1,600
RDT&E Articles (Quantity)	0	0	0

FY07 Planned Program:

- Primary SW Design, Coding and Testing of the ECP Algorithm
- Developmental and Operational Testing
- Leveraged participation in FT for ECP checkout

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2006		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment				
C. Other Program Funding Summary								
	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	224,016	162,297	197,707	192,034	203,946	212,106	218,002	1,410,108
PE 0603879C Advanced Concepts, Evaluations and Systems	166,996	0	0	0	0	0	0	166,996
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	4,487,253	2,489,257	2,605,567	2,444,109	2,065,344	1,979,612	1,617,059	17,688,201
PE 0603883C Ballistic Missile Defense Boost Defense Segment	472,543	490,863	632,028	567,493	493,842	615,859	988,731	4,261,359
PE 0603884C Ballistic Missile Defense Sensors	567,193	294,283	536,428	554,012	623,089	306,965	217,590	3,099,560
PE 0603886C Ballistic Missile Defense System Interceptors	272,064	215,952	438,287	634,709	1,138,597	1,391,301	1,499,204	5,590,114
PE 0603888C Ballistic Missile Defense Test and Targets	700,570	632,107	692,209	614,174	649,766	668,624	678,105	4,635,555
PE 0603889C Ballistic Missile Defense Products	384,935	394,652	521,640	517,507	534,429	530,893	531,219	3,415,275
PE 0603890C Ballistic Missile Defense System Core	398,852	420,151	558,231	557,880	561,003	548,354	554,731	3,599,202
PE 0603891C Special Programs - MDA	0	324,522	421,303	836,168	1,110,695	1,027,677	1,260,497	4,980,862
PE 0603892C Ballistic Missile Defense Aegis	0	939,066	990,565	857,832	900,265	933,815	816,206	5,437,749
PE 0603893C Space Tracking & Surveillance System	0	239,998	361,515	429,679	640,367	787,008	818,606	3,277,173
PE 0603894C Multiple Kill Vehicle	0	83,000	220,370	273,805	307,566	309,284	115,119	1,309,144
PE 0603895C BMD System Space Program	0	0	0	45,000	150,000	166,000	206,100	567,100
PE 0605502C Small Business Innovative Research - MDA	138,907	0	0	0	0	0	0	138,907
PE 0901585C Pentagon Reservation	11,001	17,386	15,586	6,058	6,376	4,490	4,725	65,622
PE 0901598C Management Headquarters - MDA	110,662	99,327	89,314	86,821	86,244	70,600	70,714	613,682
PE Air Force Military Personnel	0	3,628	7,640	8,332	8,535	8,826	9,129	46,090
PE Air Force Operations and Maintenance	17,600	7,964	11,712	33,830	33,080	34,119	35,398	173,703
PE Air Force Other Procurement	0	2,400	1,453	11,279	386	17,710	25,709	58,937
PE Army Operations and Maintenance	49,597	66,974	68,246	69,809	71,472	73,325	75,230	474,653
PE Army Natl Guard Military Personnel	21,000	17,648	24,432	24,952	25,591	25,591	25,591	164,805
PE Army Natl Guard Operations and Maintenance	0	155	151	150	154	164	167	941
PE Navy Operations and Maintenance	11,300	12,900	24,100	24,400	24,600	23,300	23,700	144,300
PE PAC-3/MEADS Missile Procurement	574,972	581,924	578,579	660,584	616,020	509,032	738,679	4,259,790
PE PAC-3/MEADS RDT&E	344,978	304,973	336,959	465,395	521,791	522,418	502,961	2,999,475

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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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D. Acquisition Strategy

The design objective of the Patriot system is to provide an element of the Ballistic Missile Defense System capable of being modified to cope with the evolving threat. This strategy minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems.

As a result of the 17 March 2005 MDA CCB approval of ECP-0024 Upper Tier Debris Mitigation, LTPO plans to implement ECP-0024 over a 4 FY period with a projected completion date of 1QTR FY08. The implementation of ECP-0024 will be demonstrated through a series of Flight Tests. Additionally, ECP-0024 is planned for implementation in the normal LTPO Post Deployment Build cycle.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification					Date February 2006		
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APPROPRIATION/BUDGET ACTIVITY				R-1 NOMENCLATURE			
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				0603881C Ballistic Missile Defense Terminal Defense Segment			
COST (\$ in Thousands)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
0602 Program-Wide Support	17,426	17,912	17,078	17,052	11,434	10,954	3,015
RDT&E Articles Qty	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program such as strategic planning, program integration, business management, cost estimating, contracting, and financial management, to include preparation of financial statements, reimbursement of financial services provided by DFAS, internal review and audit, earned-value management, and program assessment. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Many of these costs reside within the Missile Defense Agency Executing Agents in the Services: Army Space and Missile Defense Command, Army PEO Space and Missile Defense, Office of Naval Research, and various Air Force laboratory and acquisition activities, although some functions and costs within this program element are performed by MDA employees assigned within the National Capital Region (NCR). Other costs included herein provide facility capabilities for MDA Executing Agent locations, such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuation on a limited number of foreign contracts.

B. Accomplishments/Planned Program

	FY 2005	FY 2006	FY 2007
Civilian Salaries and Support	17,426	17,912	17,078
RDT&E Articles (Quantity)	0	0	0

See Section A: Mission Description and Budget Item Justification

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2006
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603881C Ballistic Missile Defense Terminal Defense Segment
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C. Other Program Funding Summary								
	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total Cost
PE 0603175C Ballistic Missile Defense Technology	224,016	162,297	197,707	192,034	203,946	212,106	218,002	1,410,108
PE 0603879C Advanced Concepts, Evaluations and Systems	166,996	0	0	0	0	0	0	166,996
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	4,487,253	2,489,257	2,605,567	2,444,109	2,065,344	1,979,612	1,617,059	17,688,201
PE 0603883C Ballistic Missile Defense Boost Defense Segment	472,543	490,863	632,028	567,493	493,842	615,859	988,731	4,261,359
PE 0603884C Ballistic Missile Defense Sensors	567,193	294,283	536,428	554,012	623,089	306,965	217,590	3,099,560
PE 0603886C Ballistic Missile Defense System Interceptors	272,064	215,952	438,287	634,709	1,138,597	1,391,301	1,499,204	5,590,114
PE 0603888C Ballistic Missile Defense Test and Targets	700,570	632,107	692,209	614,174	649,766	668,624	678,105	4,635,555
PE 0603889C Ballistic Missile Defense Products	384,935	394,652	521,640	517,507	534,429	530,893	531,219	3,415,275
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PE 0603894C Multiple Kill Vehicle	0	83,000	220,370	273,805	307,566	309,284	115,119	1,309,144
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PE 0605502C Small Business Innovative Research - MDA	138,907	0	0	0	0	0	0	138,907
PE 0901585C Pentagon Reservation	11,001	17,386	15,586	6,058	6,376	4,490	4,725	65,622
PE 0901598C Management Headquarters - MDA	110,662	99,327	89,314	86,821	86,244	70,600	70,714	613,682
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PE Air Force Other Procurement	0	2,400	1,453	11,279	386	17,710	25,709	58,937
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PE PAC-3/MEADS Missile Procurement	574,972	581,924	578,579	660,584	616,020	509,032	738,679	4,259,790
PE PAC-3/MEADS RDT&E	344,978	304,973	336,959	465,395	521,791	522,418	502,961	2,999,475