Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603894C Multiple Kill Vehicle**

COST ($ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	48,370	144,362	271,151	352,741	461,179	618,263	673,477	842,905
0515 Multiple Kill Vehicles (MKV)	47,995	141,637	265,368	345,044	447,842	608,455	663,572	830,000
0602 Program-Wide Support	375	2,725	5,783	7,697	13,337	9,808	9,905	12,905

A. Mission Description and Budget Item Justification

A.1 System Element Description

The Multiple Kill Vehicle mission is to counter complex ballistic missile threats during their midcourse phase of flight with multiple kill vehicles launched from a single interceptor missile. Our objective is to provide multiple kill vehicle capability to all midcourse interceptor elements, beginning with parallel integration in the Ground-Based Midcourse Defense and the Aegis Ballistic Missile Defense elements. We focus Multiple Kill Vehicle development activities on a low technical and schedule risk approach. We achieve cost avoidance and facilitate spiral development by maximizing commonality and modularity of kill vehicle components. Designs include a capability to adapt these common components in modular payloads for the Kinetic Energy Interceptor element which under circumstances becomes boost phase efforts. This modular design approach also cost-effectively maintains a unitary kinetic kill vehicle alternative for the boost phase intercept mission should the Airborne Laser fail to meet its performance objectives.

Multiple Kill Vehicle payloads are a revolutionary upgrade for all Ballistic Missile Defense System midcourse elements. We will capitalize on past investment in interceptors, launchers, and fire control systems by adding common, next generation payloads to each interceptor that will dramatically increase their effectiveness against evolving and emerging threats. The Multiple Kill Vehicle is an integral component of a broad Ballistic Missile Defense System strategy for defeating our adversaries. In this strategy, the Multiple Kill Vehicle payload will exploit data from Ballistic Missile Defense System sensors and the Command, Control, Battle Management and Communication system to identify, seek out, and destroy all lethal objects within the threat cluster.

The Missile Defense Agency strategy is to manage all future kill vehicle development under a single program element and to employ parallel path acquisition of alternative multiple kill vehicle configurations. The strategy allows the agency to evaluate viable designs and maximizes opportunity to incorporate common, modular components. We will continue Multiple Kill Vehicle payload development work on the current design configuration. Beginning in FY07, we will add a parallel payload development effort with another contractor for an alternative concept. This parallel effort will explore alternative technologies and configurations to ensure delivery of this critical capability.

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The first development effort is a continuation of the current configuration which consists of a carrier vehicle and a number of smaller kill vehicles. The carrier vehicle performs several functions after it deploys from the interceptor's booster. First, the carrier vehicle dispenses the multiple kill vehicles. Second, the carrier vehicle acts as the brain of the payload by detecting the objects in the threat cluster with its infrared sensor, matching what it sees with Ballistic Missile Defense System sensor data, and assigning kill vehicles to the threat objects. Third, the carrier vehicle is a communication hub for sending data to and from the individual kill vehicles and the midcourse elements, including Ground-Based Midcourse Defense, Kinetic Energy Interceptor, and Aegis Ballistic Missile Defense. This data can include updated target assignments based on improved Ballistic Missile Defense System data, kill vehicle health and status information, and hit assessment data from each kill vehicle engagement. Fourth, the carrier vehicle is a sensor that can view the results of the engagement and help with kill assessment functions for the Ballistic Missile Defense System. Finally, the carrier vehicle can also be a kill vehicle and intercept threat objects itself.

The individual kill vehicles are attached to the carrier vehicle while the carrier vehicle performs its initial functions. Once they have receipt of target assignment and are dispensed from the carrier vehicle, the kill vehicles maneuver toward their assigned targets. When the kill vehicles detect their assigned targets, they autonomously guide to intercept their assigned target. After the kill vehicles intercept the targets, the carrier vehicle reports assessment data back to the Ballistic Missile Defense System on the success of each kill vehicle.

We will develop another Multiple Kill Vehicle payload concept on a parallel acquisition path to explore alternative technologies and designs. The alternative configuration may use different technologies and design approach, but will still adhere to the Agency's goal of delivering a common, modular Multiple Kill Vehicle payload for integration with all Ballistic Missile Defense System midcourse interceptors. The second development path adds flexibility to the first path but uses the same common architecture and standards. This path will focus on developing a dispenser with multiple kill vehicles, one of which is designated as the lead kill vehicle. The lead kill vehicle provides most of the same essential functions as the Carrier Vehicle discussed above, including assigning the other kill vehicles to threat objects. In this approach, any of the other kill vehicles can assume the lead mission should the lead kill vehicle malfunction, providing redundancy and enhanced mission assurance. The parallel path development concept for the Multiple Kill Vehicle capability mitigates risk and ensures high quality kill vehicle delivery to the integrators.

Should either of the payload configurations encounter significant cost, schedule, or performance problems the parallel path, modular development approach enables us to migrate to a most cost-effective alternative configuration for all Ballistic Missile Defense System midcourse interceptors. We will manage the program through a single program office using a flexible, decision-based approach using knowledge points and key component and development test events early in the program. This includes evaluation of various approaches for cooperative development with the Japanese on the SM-3 Block IIA interceptor.

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

Adversary warhead technologies, techniques and designs continue to evolve. During midcourse flight, the enemy may attempt to disguise their warhead or deploy decoys and other types of debris around their warhead in an effort to confuse the Ballistic Missile Defense System sensors. These countermeasures make it harder for the Ballistic Missile Defense System sensors to determine which object is the lethal object within the cluster of threat objects. Multiple Kill Vehicle capability addresses these advanced emerging threats as described in the Agency's Adversary Capabilities Document.

Multiple Kill Vehicle does not require the Ballistic Missile Defense System to pinpoint a single lethal object within a threat cluster. Instead of pairing one kill vehicle with one interceptor missile, the Multiple Kill Vehicle payloads allow a single interceptor missile to deliver several kill vehicles that can attack multiple threat objects within the Ballistic Missile Defense System designated cluster. The Multiple Kill Vehicle payload will receive the best available targeting data transmitted to it in flight by the Ballistic Missile Defense System and proceed to attack and destroy a large number of objects in the threat cluster. Multiple Kill Vehicle payload dramatically increases the probability of destroying these lethal objects in the threat cluster compared to using single-kill vehicles on individual interceptors.

Multiple Kill Vehicle is a cost effective solution. With Multiple Kill Vehicle, the Ballistic Missile Defense System can engage multiple targets using a single booster. As a result, the booster, silo and associated infrastructure costs to field Multiple Kill Vehicle are significantly less than that for a single kill vehicle interceptor force of equivalent capability.

The Ballistic Missile Defense System engineering process is developing Engagement Sequence Groups for Multiple Kill Vehicle that will build upon current investments. The Engagement Sequence Groups capitalize on existing midcourse systems by adding a Multiple Kill Vehicle payload. The Agency Capability Planning Specification will examine and describe Multiple Kill Vehicle Engagement Sequence Groups that use a wide range of launch platforms and sensors.

A.3 Major System Element Goals

- Successfully conduct system concept review for an alternative concept in 4Q FY07.
- Successfully complete Component Development and Testing events to support knowledge points for the current design configuration.
  - Knowledge Point 1 demonstrates engagement management functions. We will demonstrate engagement management capability by coordinating the development of a modeling and simulation framework built on the Agency's Open Architecture Simulation Specification with the integration of Multiple Kill Vehicle sensor pathfinders to form an engagement management test bed. We will use a three-phase approach to develop and demonstrate engagement management capability. First, we will demonstrate engagement management functionality

and performance using non-real time payload digital simulations. Second, we will demonstrate engagement management functionality and processor performance using pathfinder processors and real time, processor-in-the-loop simulations. Third, we will demonstrate engagement management performance using real time, processor and seeker hardware-in-the-loop simulations. The knowledge point provides the basis for deciding whether to continue developing the Multiple Kill Vehicle payload. Should the engagement management capability show insufficient progress to merit continuation we will decide to revert to unitary kill vehicle configurations using the carrier vehicle as a unitary kill vehicle for integration with the Ground Midcourse Defense element and the Block IIA kill vehicle for integration with the Aegis Ballistic Missile Defense element. We will make this decision in 3Q FY10.

  - Knowledge Point 2 defines the ability to build and deploy lethality enhancements. The tests leading to Knowledge Point 2 include 1) High Fidelity Payload Non-Real Time Digital Simulations, 2) Brassboard Processor-in-the-Loop testing, and 3) Deployment tests. This knowledge point will be the basis for deciding whether to continue lethality enhancement development or to defer it. We will make this decision in 2Q FY11.

- Complete Knowledge Point 3 that defines the ability to successfully ground test a flight configured payload and complete hardware in the loop testing. At this knowledge point, we will evaluate the viability and payoff of continuing with dual designs and sources to most effectively deliver this capability to all of the midcourse elements. We will make this decision in Block 2012.
- Demonstrate initial multiple kill vehicle capability and interceptor integration through flight testing on the Ground-Based Missile Defense element by Block 2014/2016.

A.4 Major Events Schedule and Description

Major Event	Project	Timeframe	Description
Other			
Program Milestones			
Engagement Management Knowledge Point	0515	3Q FY 2010	• Conduct testing of engagement management algorithms using High Fidelity digital simulations and Processor-in-the-loop testing
Readiness Level Evaluation Point 1	0515	3Q FY 2010	• Technologies at least Technology Readiness Level 4 • All raw materials identified and characterized • Component machines and tooling demonstrated in a lab environment & capable of supporting rate production • Estimate process rates and tool life cycles • Define manufacturing production plan • Identify component manufacturing processes and begin process qualification • Analysis of design changes needed for manufacturability are under way

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Major Event	Project	Timeframe	Description
Lethality Enhancement Knowledge Point	0515	2Q FY 2011	• Determine lethality requirements for Multiple Kill Vehicle. Design, build and test a pathfinder and conduct high fidelity simulations to determine whether to continue with lethality technology or to defer it.
Ground Test Knowledge Point	0515	2Q FY 2012	• Initial flight payload end-to-end ground testing to verify payload performance • Decision point to evaluate the viability and payoff of continuing with dual designs and sources
Readiness Level Evaluation Point 2	0515	2Q FY 2013	• Technologies at least Technology Readiness Level 6 • Materials demonstrated in production • Manufacturing processes and procedures initially demonstrated • Inspection and test equipment developed and tested in manufacturing environment • Quality and reliability levels initially identified • Software Qualification completed and build under configuration control
System Engineering			
System Concept Review for alternative concept	0515	4Q FY 2007	• Conduct system and payload trade studies • Define payload design, program plan and knowledge points for alternative concept
Conduct System Requirements Reviews	0515	1Q FY 2009	• Identify, conduct and complete system trades to establish payload requirements, and integration requirements across midcourse interceptor elements
Conduct Preliminary Design Review	0515	1Q FY 2010	• Technical review of the basic design approach for configuration items to assure compliance with program requirements.
Conduct Critical Design Review	0515	4Q FY 2011	• Technical review of the detail design of the selected configuration.
Flight Test			
System Test and Evaluation			
Conduct Flight Test 1	0515	2Q FY 2013	• Initial payload flight test to verify payload to booster integration and verify flight environments

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B. Program Change Summary	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007 PB)	50,324	164,975	285,805	357,340
Current President's Budget (FY 2008 PB)	48,370	144,362	271,151	352,741
Total Adjustments	-1,954	-20,613	-14,654	-4,599
Congressional Specific Program Adjustments	0	-20,000	0	0
Congressional Undistributed Adjustments	0	-613	0	0
Reprogrammings	-993	0	0	0
SBIR/STTR Transfer	-961	0	0	0
Adjustments to Budget Years	0	0	-14,654	-4,599

FY06 decrease of $1.954 million includes SBIR/STTR transfer and MDA reprogrammings.

FY07 decrease of $20.613 million includes a congressional specific program reduction of $20.0 million and a portion of the MDA congressional undistributed reduction.

FY08 decrease of $14.654 million is the result of MDA programmatic changes.

FY09 decrease of $4.599 million is the result of MDA programmatic changes.

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COST ($ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0515 Multiple Kill Vehicles (MKV)	47,995	141,637	265,368	345,044	447,842	608,455	663,572	830,000
RDT&E Articles Qty	0	0	0	0	2	6	28	17

A. Mission Description and Budget Item Justification

The rapidly evolving and emerging threat is driving all future midcourse defense weapon systems to pursue multiple kill capabilities as soon as practical. Our recent systems engineering and analysis work concluded that a suite of highly modular and common technologies support cost-effective multiple kill vehicle designs for the Ground Based Midcourse Defense, Aegis BMD, and Kinetic Energy Interceptor weapon elements. Similar kill vehicle technologies can be integrated in different ways to support the diverse fly-out, cluster containment, discrimination, and intercept mission objectives of the BMDS weapons. Unitary derivatives of the multiple kill vehicle designs are also sufficient for special purpose mission applications such as boost/ascent phase intercept. The Agency is looking to take full advantage of this extensive kill vehicle modularity and commonality opportunity by organizing kill vehicle development under a single program element. The Agency is employing a parallel path acquisition approach to develop the required spectrum of kill vehicle mission capabilities while mitigating the risk of cost-effective product delivery to the weapon integrators and War Fighter.

Multiple Kill Vehicle addresses emerging threats detailed in the Adversary Capabilities Document by the Agency System Engineer. The Multiple Kill Vehicle common, modular payload on-board a midcourse element interceptor will have the ability to destroy large numbers of potentially lethal objects within the threat cluster using a single interceptor. When integrated with the Ballistic Missile Defense System's Command and Control, Battle Management and Communications, the War Fighter using Multiple Kill Vehicle's unique capability can select and engage many targets within a threat cluster. This dramatically alters the statistical probability of kill in favor of the defender and provides for early, decisive engagement of an adversary threat.

Multiple Kill Vehicle's unique capability also makes it a cost effective solution for pacing the evolving threat by engaging several threat objects with a single interceptor. The resulting reduction in interceptor, silo and associated infrastructure costs to field Multiple Kill Vehicle is thus significantly less than that for a single-kill vehicle interceptor force of equivalent capability. We will continue component development work on the current design configuration. Beginning in FY07, we will add a parallel payload development effort with another contractor for an alternative Multiple Kill Vehicle concept. This parallel effort will explore alternative technologies and configurations to ensure delivery of this critical capability. Multiple Kill Vehicle will coordinate with Ground-Based Midcourse Defense, Aegis Ballistic Missile Defense, and Kinetic Energy Interceptor to develop joint requirement and interface specifications and modify operational concepts. We will coordinate test planning activities to ensure boosters are procured and ready for testing with a Multiple Kill Vehicle payload. We will use the existing interceptor build-up infrastructure to transport and mate the

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payloads to the boosters. We will integrate Multiple Kill Vehicle communication systems with the Ground-Based Midcourse Defense and Aegis Ballistic Missile Defense existing communication systems. Multiple Kill Vehicle is managed under a flexible, decision-based approach using knowledge points and key component and development test events early in the program. The Multiple Kill Vehicle test program progresses from digital simulation to Ballistic Missile Defense System level flight tests in the Pacific Test Bed including: engagement management test bed with hardware-in-the-loop testing, captive carry flight testing, carrier and kill vehicle hover tests, and carrier and kill vehicle flight tests (Ballistic Missile Defense System level flight tests in the Pacific Test Bed). In FY07, we initiate this test progression by executing Component Development and Test activities designed to reduce risk and to support our knowledge point decisions.

B. Accomplishments/Planned Program

	FY 2006	FY 2007	FY 2008	FY 2009
Payload Development	26,527	97,628	184,895	244,647
RDT&E Articles (Quantity)	0	0	0	0

The ability to manage multiple kill vehicle engagements is critical to the success of the Multiple Kill Vehicle payload. The payload will rely on target information from the Ballistic Missile Defense System and the payload sensor. We will develop the engagement management capability and demonstrate and test this capability using an engagement management test bed. The test bed will initially consist of an all digital network of payload simulations. We will mature and enhance the test bed capability by adding processor and seeker hardware for real time demonstration of engagement management capability.

The engagement management test bed work begins in FY07 with development of engagement management algorithms for the payload system. These algorithms will accomplish multi-target tracking, target object map receipt and correlation, assign kill vehicles to targets (initial assignment and including formation flying), kill vehicle navigation initialization, guidance and control, and endgame functions through target interception. To capitalize on Agency investments, Multiple Kill Vehicle is working with the Hercules Project to incorporate applicable software and algorithm development work into the program.

Once the algorithm work is complete, we will develop signal processor breadboard hardware and software to allow real time execution of the engagement management software. This hardware will exhibit the same computing capabilities and general processor architecture expected for the flight system. The engagement management simulation will be compliant with Missile Defense Agency's Open Architecture System Interface Standard.

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Another key component of the Multiple Kill Vehicle payload is the divert and attitude control system. We initially develop a low risk, high performance liquid fueled divert and attitude control system. Concurrently we will explore other divert and attitude control system technologies for sea basing of the Multiple Kill Vehicle capability. The divert and attitude control systems enable the payload components to maneuver into the path of the target cluster and the specific objects they are directed to intercept.

We will develop a ground based hover test bed to integrate and test key components of the divert and attitude control systems in an observable, recoverable and repeatable ground based free flight environment. The hover test bed will accommodate the evolution of the test articles; including more complex tests using newly developed tactically representative hardware. The hover test bed will support both static firing of the divert and attitude control systems and hover test. During hover testing, the carrier vehicle's divert and attitude control system fires its thrusters allowing it to fly unrestrained in a controlled test environment. After the initial hover tests, we will use this test bed to continue testing payload systems. These tests will assess propulsion system performance, hardware and software integration, and flight hardware performance. The National Hover Test Facility in Edwards Air Force Base, California is responsible for overseeing the execution of both static testing and hover testing.

The sensor is another key component of the Multiple Kill Vehicle payload. The Multiple Kill Vehicle mission requires a long range sensor that distinguishes objects in the threat cluster to support target assignment and engagement management. We will develop pathfinder seekers with large format, 2-color infrared focal plane arrays to mature the seeker capability and demonstrate we can manage kill vehicle engagements using the seeker data. Initial long range seeker component development and test activities will capitalize on Agency investments in two-color infrared technology and build on proven test constructs and facilities. Successful seeker component development and test establishes our confidence in the Multiple Kill Vehicle payload's capability to acquire and track threat objects early enough in the battle space and to perform the end game maneuver resulting in successful intercept.

In FY07, we will mitigate technical, schedule and cost risk for developing the sensors through early integration and testing. We will first use a commercially available focal plane arrays and then proceed to custom focal plane arrays. We will integrate the arrays with new aluminum, all-reflective telescopes, cryogenic focal plane array coolers, and seeker electronics. After integrating these components, we will test seeker functionality and calibrate against Infrared National Standards at Utah State University's Space Dynamics Laboratory. Following calibration, we will mate one of each type seeker assembly to a gimbaled-canister system and then integrate the seeker and gimbaled-canister system onto an Agency airborne sensor platform. The goal is to test the airborne seeker assembly against live targets of opportunity starting in FY09. We will use a second seeker assembly in our engagement management test bed. We will exploit this test bed to demonstrate the capability of the payload system software and hardware to execute and manage multiple engagements.

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FY06 Accomplishments
- Designed carrier vehicle bi-propellant divert and attitude control system
- Integrated and hot fire tested kill vehicle divert thruster
- Identified integration facility requirements

FY07 Planned Program
- Define requirements for large format 2-color infrared focal plane array
- Initiate development of engagement management test bed
- Design and develop engagement management algorithms
- Develop processes and procedures to successfully integrate and test hover vehicles at the National Hover Test Facility
- Initiate development of carrier vehicle divert and attitude control system for hover test
- Develop hardware and software for pathfinder hover test vehicle
- Begin building the pathfinder hover test vehicle
- Demonstrate non-real time digital algorithm functionality with 3D graphics display using non-real time and all digital test bed
- Initiate development of large format 2-color focal plane arrays
- Procure canister and gimbal for carrier vehicle captive carry testing
- Design carrier vehicle seeker telescope
- Initiate manufacturing of carrier vehicle seeker telescopes

FY08 Planned Program
- Develop and fabricate pathfinder carrier vehicle breadboard hardware
- Develop hover test vehicle modular avionics using open architecture and commercial off the shelf based electronics
- Develop closed loop control system to control pathfinder hover test vehicle
- Finish building the pathfinder hover test vehicle
- Integrate power system and test bed component power converters
- Integrate component development special test equipment
- Continue development of engagement management test bed
- Demonstrate engagement management algorithms using non-real time and all digital test bed
- Incorporate engagement management algorithms onto the processor breadboard

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- Demonstrate key payload functionality and algorithm in real time processor-in-the-loop test bed
- Begin to incorporate the pathfinder carrier vehicle seeker assembly and seeker breadboard and signal processor HW and SW into the processor in the loop test bed
- Fabricate and test seeker gimbal system for captive carry testing
- Deliver two aluminum all reflective carrier vehicle telescopes
- Develop and deliver large format 2-color infrared focal plane arrays
- Integrate all-reflective telescope, cryogenic-cooler, and seeker electronics
- Initiate engagement management and other key component development and test activities for the alternative concept

FY09 Planned Program

- Develop and fabricate pathfinder kill vehicle breadboard hardware
- Continue development of engagement management test bed
- Demonstrate key payload functionality and algorithms in real time processor-in-the-loop test bed
- Demonstrate key payload functionality and algorithms in real-time seeker-in-the-loop test bed
- Demonstrate many-on-many and coordinated attack engagement management algorithms using processor-in-the-loop test bed
- Develop and fabricate pathfinder carrier vehicle seeker signal processor hardware and software
- Integrate one seeker assembly into closed loop captive carry gimbaled-canister system
- Integrate one pathfinder seeker into engagement management test bed
- Continue incorporating the carrier vehicle seeker assembly and seeker breadboard and signal processor hardware and software into the processor in the loop test bed
- Complete lethality enhancement pathfinder design
- Continue component development and test activities for the alternative concept

	FY 2006	FY 2007	FY 2008	FY 2009
System Engineering	17,328	29,443	42,645	51,194
RDT&E Articles (Quantity)	0	0	0	0

Multiple Kill Vehicle completed System Concept Review for the current configuration in August 2006. From the System Concept Review we developed a system payload configuration and a program plan that we will use to develop requirements and mature the design. In FY07 we will conduct a system concept review for the alternative concept and continue to work with the Ballistic Missile Defense System Engineer and midcourse

elements to identify, conduct and complete system trades to establish payload requirements for integration across midcourse interceptor elements. These trades will lead to FY09 Payload System Requirements Reviews with the midcourse elements. In FY08 and FY09, we will continue to decompose the payload system requirements, carry out component trade studies, and allocate requirements to the component and subcomponent levels leading to preliminary design review in FY10.

FY06 Accomplishments

- Conducted Ballistic Missile Defense System architecture and payload component trades to define Multiple Kill Vehicle payload concept for Block 2012/2014
- Conducted System Concept Review
- Established functional and physical architectures for the Multiple Kill Vehicle payload concept
- Completed scenario development

FY07 Planned Program

- Conduct System Concept Review for the alternative concept
- Conduct necessary top level Ballistic Missile Defense System level system trades to establish payload requirements for integration across midcourse interceptor elements
- Develop a Joint Systems Engineering Management Plan to integrate the Multiple Kill Vehicle into the Ground Based Midcourse Defense Element and the Aegis Ballistic Missile Defense Element
- Perform Multiple Kill Vehicle payload system trade studies to establish and balance carrier vehicle and kill vehicle performance parameters
- Update and execute Risk Management Plan
- Deliver open architecture system interface standard simulation framework
- Develop all digital, open architecture multiple kill vehicle payload simulation
- Define lethality enhancement requirements
- Develop medium fidelity digital simulation

FY08 Planned Program

- Perform necessary systems engineering efforts to develop payload requirements, and mature the functional and physical architectures
- Complete flow down of payload requirements to carrier vehicle and kill vehicle components
- Conduct carrier vehicle and kill vehicle requirement reviews

- Update open architecture system interface standard simulation framework
- Update and execute Risk Management Plan

FY09 Planned Program
- Complete System Requirements Reviews
- Initiate performance verification of component and subcomponent engineering models and update performance requirements
- Continue to decompose the payload system requirements
- Carry out component trade studies
- Allocate requirements to the component and subcomponent levels
- Update and execute Risk Management Plan
- Develop high fidelity digital simulation

	FY 2006	FY 2007	FY 2008	FY 2009
System Test and Evaluation	1,821	10,876	33,448	44,595
RDT&E Articles (Quantity)	0	0	0	0

Systems Test and Evaluation consists of integration and test activities, component development test activities, and payload ground and flight testing.

In FY06, we initiated a study to determine the payload process flow and identification of modifications need to be made to the current Ground Based Midcourse booster integration process for Multiple Kill Vehicle payload integration. We will continue working with the Ground Based Midcourse and Aegis Ballistic Missile Defense elements to develop a joint ground and flight test programs in FY07. This joint planning includes working with Vandenberg Air Force Base and the Western Range to determine payload and booster process flow on the range, safety and hazardous requirements and range radar, telemetry and optical capabilities required during flight tests. By FY08, we intend to submit a jointly developed and approved Development Master Test Plan.

We will develop a hover test bed designed to accommodate the evolution of our carrier and kill vehicles. The progression of the test bed will include more tactically representative hardware and more complex tests to include kill vehicle dispense and operation. After the initial hover tests, we will use this test bed to continue testing carrier vehicle and kill vehicle propulsion systems. These tests will assess propulsion system performance, hardware and software integration, and flight hardware performance. The National Hover Test Facility in Edwards Air Force Base, California is responsible for overseeing the execution of both static testing and hover testing.

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In FY07 and FY08, we will design and produce two 2-color seeker test assemblies. In FY08, we intend on integrating one of these assemblies into an Agency airborne platform for captive carry testing. Captive carry testing the seeker provides us the ability to asses our acquisition, tracking, correlation and weapon target assignment algorithms against live target missiles. We will use the second seeker assembly in the Engagement Management test bed.

FY06 Accomplishments
- Began Program Master Test Plan development
- Re-activated the National Hover Test Facility (Edwards AFB) for static and hover testing

FY07 Planned Program
- Initiate development of Special Test Equipment for hover test bed
- Begin building carrier vehicle seeker gimbal, canister and flight support equipment for captive carry testing
- Complete Program Master Test Plan
- Begin Development Master Test Plan
- Begin flight test planning with Ground Based Midcourse element and Western Range
- Conduct test readiness reviews to prepare for the static hot fire test
- Conduct divert and attitude control system static hot fire tests

FY08 Planned Program
- Deliver Development Master Test Plan
- Conduct engineering and development testing to support Engineering Manufacturing Readiness Level 1 and Software Readiness Level 3
- Deliver integrated master test plan
- Conduct divert and attitude control system hover tests
- Deliver 2-color seeker assembly to hardware in-the-loop test bed

FY09 Planned Program
- Integrate 2-color seeker, gimbal, canister and flight support equipment onto an Agency airborne sensor platform
- Initiate captive carry flight test against live targets of opportunity
- Develop flight test plans with Western Test Range (Vandenberg Air Force Base)

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- Conduct lethality enhancement deployment test
- Conduct engineering and development testing to support Engineering Manufacturing Readiness Level 1 and Software Readiness Level 3

	FY 2006	FY 2007	FY 2008	FY 2009
Program Operations	2,319	3,690	4,380	4,608
RDT&E Articles (Quantity)	0	0	0	0

In FY06 we transitioned from a technology program to a system acquisition program. Multiple Kill Vehicle Program Operations is leading an integrated Missile Defense Agency team approach using skills from government, industry, and academia. Multiple Kill Vehicle Program Operations is responsible for managing a team of government, Federally Funded Research and Development Centers and SETA to provide a comprehensive plan and programmatic support for Multiple Kill Vehicle.

FY06 Accomplishments

- Transitioned from a technology program to a system acquisition program in Spring 2006
- Assisted in conduct of Multiple Kill Vehicle System Concept Review
- Evaluated modular kill vehicle development opportunities and refined acquisition strategy
- Provided government and contractor program staff and infrastructure for the overall management of the Multiple Kill Vehicle program
- Provided technical and business management support activities, financial management, cost and schedule performance assessment, cost estimation and analysis, and configuration management
- Continued program management, quality assurance, mission assurance, and technical and testing oversight
- Ensured Multiple Kill Vehicle compliance with internal and external direction, policies, and regulations

FY07 Planned Program

- Assist development of Multiple Kill Vehicle System Concept Review for an alternative concept
- Provide government and contractor program staff and infrastructure for the overall management of the Multiple Kill Vehicle program
- Provide technical and business management support activities, financial management, cost and schedule performance assessment, cost estimation and analysis, and configuration management
- Continue program management, quality assurance, mission assurance, and technical and testing oversight
- Ensure Multiple Kill Vehicle compliance with internal and external direction, policies, and regulations

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603894C Multiple Kill Vehicle**

FY08 Planned Program

- Provide government and contractor program staff and infrastructure for the overall management of the Multiple Kill Vehicle program
- Provide technical and business management support activities, financial management, cost and schedule performance assessment, cost estimation and analysis, and configuration management
- Continue program management, quality assurance, mission assurance, and technical and testing oversight
- Ensure Multiple Kill Vehicle compliance with internal and external direction, policies, and regulations

FY09 Planned Program

- Assist development of Multiple Kill Vehicle System Requirements Reviews
- Provide government and contractor program staff and infrastructure for the overall management of the Multiple Kill Vehicle program
- Provide technical and business management support activities, financial management, cost and schedule performance assessment, cost estimation and analysis, and configuration management
- Continue program management, quality assurance, mission assurance, and technical and testing oversight
- Ensure Multiple Kill Vehicle compliance with internal and external direction, policies, and regulations

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603894C Multiple Kill Vehicle

C. Other Program Funding Summary

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603175C Ballistic Missile Defense Technology	147,270	193,307	118,569	109,540	116,014	121,008	127,917	131,291	1,064,916
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,120,879	1,092,076	962,585	1,004,282	924,101	851,213	678,694	501,147	7,134,977
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	2,391,246	3,043,058	2,520,064	2,359,665	2,179,602	1,699,963	1,153,082	1,183,003	16,529,683
PE 0603883C Ballistic Missile Defense Boost Defense Segment	455,572	628,958	548,759	432,432	448,375	678,913	829,683	1,026,239	5,048,931
PE 0603884C Ballistic Missile Defense Sensors	284,297	514,129	778,163	984,963	939,417	791,701	723,843	603,585	5,620,098
PE 0603886C Ballistic Missile Defense System Interceptors	200,446	356,004	227,499	393,317	522,388	730,236	836,029	570,206	3,836,125
PE 0603888C Ballistic Missile Defense Test and Targets	610,619	601,782	586,150	628,364	662,984	681,511	696,037	705,210	5,172,657
PE 0603889C Ballistic Missile Defense Products	387,402	0	0	0	0	0	0	0	387,402
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PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603894C Multiple Kill Vehicle

D. Acquisition Strategy

Several factors drove the Agency to update the acquisition strategy for Multiple Kill Vehicle, these include (1) Expanding volume kill capability to include both land- and sea-based options; (2) Maximizing commonality and modularity of kill vehicle components; (3) Consolidating BMDS multiple and unitary kill vehicle design and development efforts; and (4) Lowering schedule and technical risk. This drove the change from a technology program to an acquisition program. We also decided that investing in a single development and test path for all our weapon spiral upgrades was too high risk. In executing the initial systems engineer work for the restructured program we concluded that our existing unitary kill vehicle development investments in programs such as GMD, Aegis BMD and KEI could be directly leveraged to provide both unitary and multiple kill vehicle alternatives. Our transition to a Multiple Kill Vehicle acquisition focus drives the payload solutions to the same technologies we have been developing and testing for many years in unitary KV programs. This high level of kill vehicle modularity and commonality across all the weapon systems enables us to make focused investments on parallel path developments that reduce risk and cost through an integrated, cross-element management approach.

The Multiple Kill Vehicle program will execute an evolutionary, capability-based acquisition strategy for delivering volume kill capability and derivative unitary kill vehicles. The evolutionary acquisition strategy emphasizes use of proven technologies, early development of key components and capabilities, realistic knowledge-point testing and demonstrations, and spiral technology insertion. The knowledge points will demonstrate and test capabilities that are critical for Multiple Kill Vehicle success. The first knowledge point will demonstrate and assess engagement management capability. Based on demonstrated engagement management capability, we will decide whether to continue developing the Multiple Kill Vehicle payload. Should neither Multiple Kill Vehicle payload configuration show sufficient progress to merit continuation we will revert to unitary kill vehicle configuration using the carrier vehicle as a unitary kill vehicle for integration with the Ground Midcourse Defense element and the Block 2A kill vehicle for integration with the Aegis Ballistic Missile Defense element. The second knowledge point will assess the capability to build and deploy lethality enhancements. This knowledge point will be the basis for deciding whether to continue development of lethality enhancements or to defer development. The evolutionary, capabilities based acquisition approach allows us to incrementally assess our progress and technology readiness while maintaining the flexibility to adjust our strategy if necessary.

The Multiple Kill Vehicle program includes early demonstration and testing of critical capabilities. As we assess the capability through demonstration and testing, we will decide how to proceed on each parallel path. We will use a third knowledge point based on ground testing of the different payload configurations to evaluate the viability and the pay off of using dual designs and sources to most effectively deliver this critical capability to all of the midcourse elements. We will apply an incremental, spiral capability development and technology insertion approach enabling us to remain ahead of the threat while increasing mission assurance.

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603894C Multiple Kill Vehicle

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Payload Development										
Payload Development	CPAF	Lockheed Martin/ Sunnyvale, CA & Dallas, TX	25,750	72,006	1Q	124,730	1Q	156,569	1Q	379,055
Payload Development	CPAF	TBD	0	15,547	2Q	48,084	1Q	75,395	1Q	139,026
Subtotal Product Development			25,750	87,553		172,814		231,964		518,081

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Payload Development										
Payload Development SETA	CPFF	AeroThermo/ Huntsville, AL	377	475	1Q	749	1Q	786	1Q	2,387
Payload Development SETA	CPFF	Gray Research/ Huntsville, AL	0	75	1Q	79	1Q	83	1Q	237
Payload Development SETA	CPFF	Teledyne Solutions/ Huntsville, AL	0	375	1Q	394	1Q	413	1Q	1,182
Payload Development SETA	CPFF	Computer Sciences Corp/ Huntsville, AL	0	1,750	1Q	3,089	1Q	3,242	1Q	8,081
Payload Development Risk Reduction	MIPR	DRS (NVL)/ Ft. Belvoir, VA	200	3,200	1Q	3,360	1Q	3,528	1Q	10,288

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603894C Multiple Kill Vehicle**

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Payload Development Risk Reduction	MIPR	RVS (NVL)/ Ft. Belvoir, VA	0	3,400	1Q	3,570	1Q	3,749	1Q	10,719
Payload Development FFRDC	FFRDC	Space Dynamics Laboratory/ Logan, UT	200	800	1Q	840	1Q	882	1Q	2,722
System Engineering										
Systems Engineering SETA	CPFF	Sparta/ Arlington, VA	1,858	1,804	1Q	1,894	1Q	1,981	1Q	7,537
Systems Engineering SETA	CPFF	Computer Sciences Corp/ Arlington, VA	1,737	2,857	1Q	3,250	1Q	3,412	1Q	11,256
Systems Engineering SETA	CPFF	Gray Research/ Huntsville, AL	0	200	1Q	210	1Q	220	1Q	630
Systems Engineering SETA	CPAF	ITT/ Huntsville, AL	45	750	1Q	2,000	1Q	2,500	1Q	5,295
Systems Engineering SETA	CPFF	Teledyne Solutions/ Huntsville, AL	125	645	1Q	677	1Q	711	1Q	2,158
Systems Engineering SETA	CPFF	IBSI/ Clearwater, FL	0	115	2Q	121	2Q	127	2Q	363
Systems Engineering FFRDC	FFRDC	Sandia/ Albuquerque, NM	27	750	1Q	3,000	1Q	3,500	1Q	7,277
Systems Engineering FFRDC	FFRDC	MIT Lincoln Lab/ Lexington, MA	436	3,550	1Q	3,728	1Q	3,914	1Q	11,628
Systems Engineering FFRDC	FFRDC	JHU Applied Physics Laboratory/ Laurel, MD	300	3,500	1Q	3,675	1Q	3,859	1Q	11,334
Payload Engineering	CPAF	Lockheed Martin/ Sunnyvale, CA	12,800	12,560	1Q	17,387	1Q	20,904	1Q	63,651

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603894C Multiple Kill Vehicle

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Payload Engineering	CPAF	Raytheon/ Tucson, AZ	0	2,712	2Q	6,703	1Q	10,066	1Q	19,481
Subtotal Support Costs			18,105	39,518		54,726		63,877		176,226

Remarks

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
System Test and Evaluation										
System Test and Evaluation - Facilities	MIPR	NHTF, Pacific Missile Range & Vandenberg AFB/HI &CA	20	455	1Q	3,500	1Q	3,675	1Q	7,650
System Test and Evaluation SETA	CPFF	PRA/ Huntsville, AL	0	295	2Q	310	2Q	325	2Q	930
System Test and Evaluation	CPAF	Lockheed Martin/ Sunnyvale, CA & Dallas, TX	1,801	8,064	1Q	21,148	1Q	27,162	1Q	58,175
System Test and Evaluation SETA	CPFF	Sparta/ Arlington, VA	0	321	1Q	337	1Q	353	1Q	1,011
System Test and Evaluation	CPAF	Raytheon/ Tucson, AX	0	1,741	2Q	8,153	1Q	13,080	1Q	22,974
Subtotal Test and Evaluation			1,821	10,876		33,448		44,595		90,740

Remarks

Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603894C Multiple Kill Vehicle

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award/ Oblg Date	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Program Operations										
Program Operations - Gov`t Personnel and Travel		SMDC/ Huntsville, AL	1,749	2,320	1Q	2,500	1Q	2,625	1Q	9,194
Program Operations - Gov`t Personnel and Travel		NCR/ Arlington, VA	170	420	1Q	632	1Q	672	1Q	1,894
Program Operations SETA	CPFF	SAIC/ Huntsville, AL	0	300	1Q	315	1Q	331	1Q	946
Program Operations SETA	CPFF	Gray Research/ Huntsville, AL	0	175	1Q	184	1Q	194	1Q	553
Program Operations SETA	CPFF	AeroThermo/ Huntsville, AL	400	475	1Q	749	1Q	786	1Q	2,410
Subtotal Management Services			2,319	3,690		4,380		4,608		14,997

Remarks

Project Total Cost			47,995	141,637		265,368		345,044		800,044

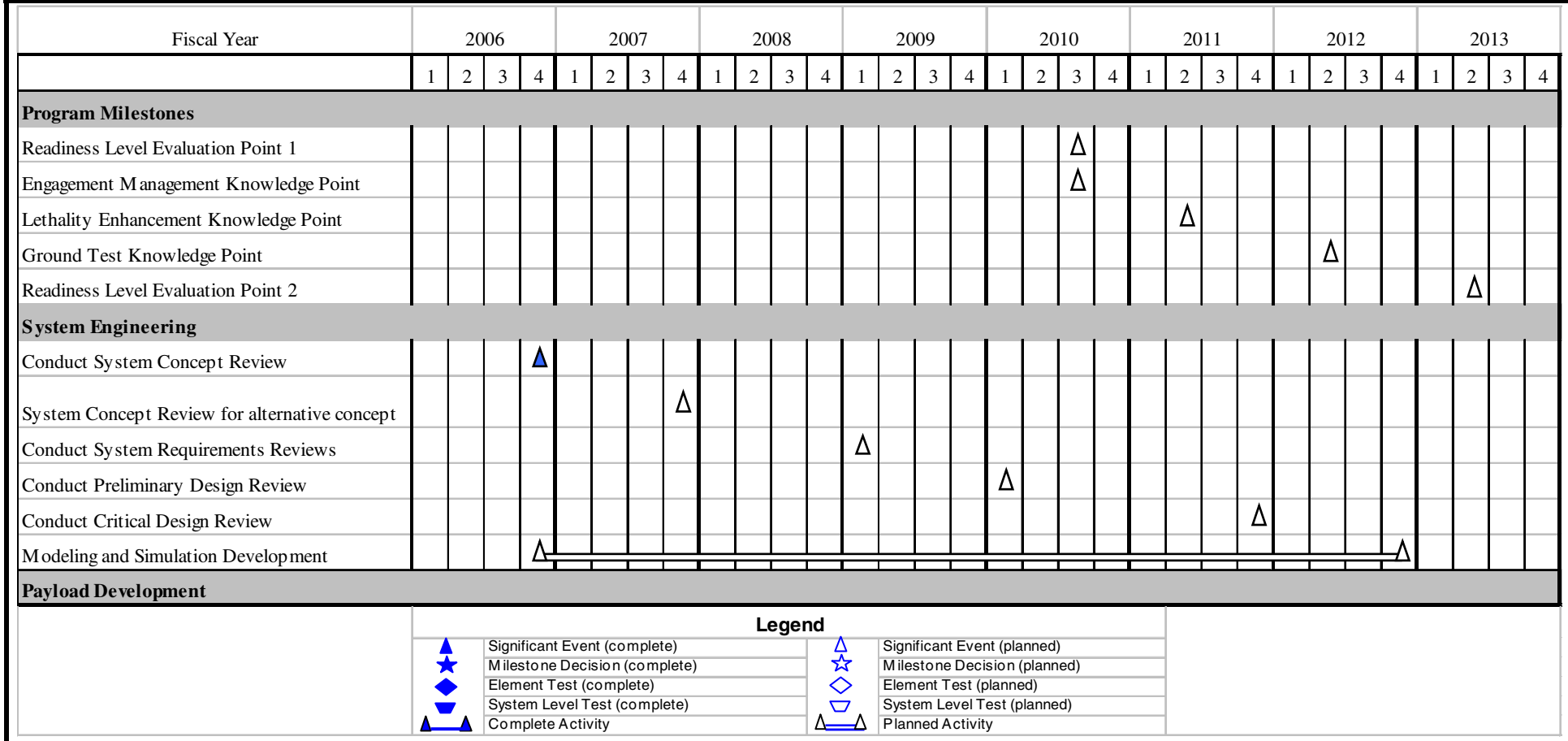
Remarks

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

Date
February 2007

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

R-1 NOMENCLATURE
0603894C Multiple Kill Vehicle

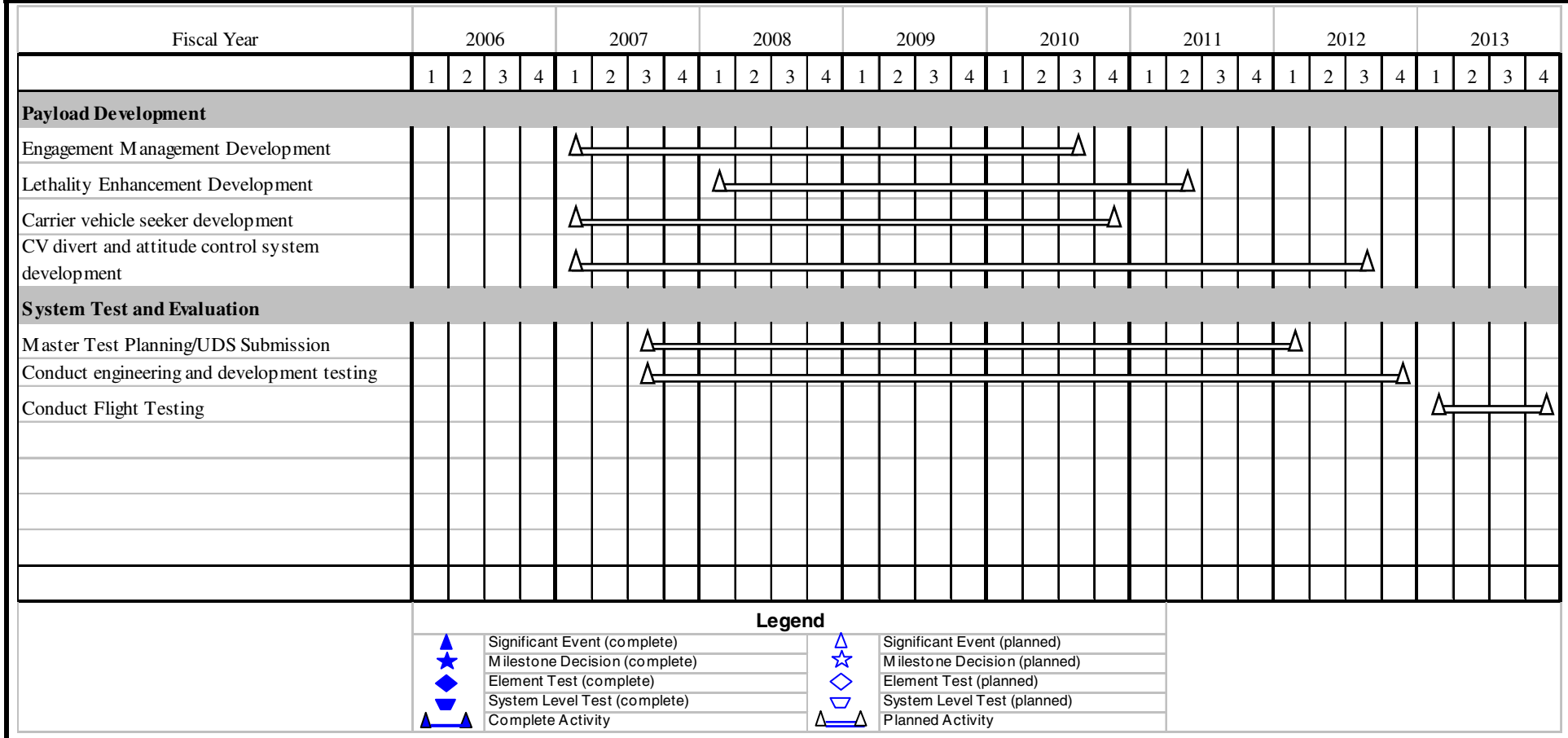


Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile

Date: **February 2007**

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

R-1 NOMENCLATURE: **0603894C Multiple Kill Vehicle**



Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603894C Multiple Kill Vehicle**

Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Program Milestones								
Readiness Level Evaluation Point 1					3Q			
Engagement Management Knowledge Point					3Q			
Lethality Enhancement Knowledge Point						2Q		
Ground Test Knowledge Point							2Q	
Readiness Level Evaluation Point 2								2Q
System Engineering								
Conduct System Concept Review	4Q							
System Concept Review for alternative concept		4Q						
Conduct System Requirements Reviews				1Q				
Conduct Preliminary Design Review					1Q			
Conduct Critical Design Review						4Q		
Modeling and Simulation Development	4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
Modeling and Simulation Scenario Development	4Q	1Q-4Q						
Complete OASIS Framework		3Q						
Conduct Medium Fidelity Digital Simulation		3Q						
Conduct High Fidelity Simulation				3Q				
Develop MKV open architecture simulation		4Q						
Conduct CV and KV requirements reviews				3Q				
Conduct CV and KV PDR`s					1Q			
Payload Development								
Engagement Management Development		1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q			
Demonstrate non real time digital simulation		3Q						
Demonstrate real time digital simulation			1Q					
Demonstrate processor in the loop simulation				2Q				
Demonstrate seeker and processor simulation					1Q			
Demonstrate coordinated attack EM algorithms			3Q					
Lethality Enhancement Development			1Q-4Q	1Q-4Q	1Q-4Q	1Q-2Q		
Lethality Requirements Defined			2Q					
Complete lethality enhancement pathfinder				3Q				
Conduct lethality enhancement deployment test					3Q-4Q			

Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603894C Multiple Kill Vehicle**

Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Carrier vehicle seeker development		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q			
Complete 2-color telescope fabrication			1Q					
Complete seeker pathfinder fabrication			2Q					
Conduct seeker pathfinder HWIL testing				1Q-4Q	1Q-4Q			
Captive carry flight test integration				1Q-3Q				
CV divert and attitude control system development		1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-3Q	
Conduct kill vehicle divert thruster hot fire test	4Q							
Conduct carrier vehicle DACS hot fire		4Q						
Complete test bed vehicle pathfinder fabrication			4Q					
Conduct carrier vehicle pathfinder hover testing			4Q					
Conduct pathfinder KV DACS hover test				4Q				
Conduct hover pathfinder brassboard testing					1Q			
Conduct CV and KV coordinated hover testing							3Q	
System Test and Evaluation								
Master Test Planning/UDS Submission		3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q	
Developmental Master Test Plan			1Q					
Program Master Test Plan		3Q						
Integrated Master Test Plan			1Q					
Universal Document System Submission			4Q					
Conduct engineering and development testing		3Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	
Conduct Flight Testing								1Q-4Q
Conduct Flight Test 1								2Q

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: **RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603894C Multiple Kill Vehicle**

COST ($ in Thousands)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0602 Program-Wide Support	375	2,725	5,783	7,697	13,337	9,808	9,905	12,905
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common 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 2006	FY 2007	FY 2008	FY 2009
Civilian Salaries and Support	375	2,725	5,783	7,697
RDT&E Articles (Quantity)	0	0	0	0

See Section A: Mission Description and Budget Item Justification

Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY: RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603894C Multiple Kill Vehicle

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PE 0603897C BMD Hercules	0	49,674	53,658	54,264	54,405	55,142	53,355	54,198	374,696
PE 0603898C BMD Joint Warfighter Support	0	54,935	48,787	50,428	54,086	56,603	58,890	60,206	383,935
PE 0603904C BMD Joint National Integration Center (JNIC)	0	110,629	104,012	106,985	111,542	111,947	113,592	115,287	773,994
PE 0603905C BMD Concurrent Test and Operations	0	23,159	0	0	0	0	0	0	23,159
PE 0603906C Regarding Trench	0	0	2,000	3,000	5,000	5,000	9,000	9,000	33,000
PE 0605502C Small Business Innovative Research - MDA	133,105	0	0	0	0	0	0	0	133,105
PE 0901585C Pentagon Reservation	14,874	15,527	6,058	6,376	4,490	4,725	4,801	4,877	61,728
PE 0901598C Management Headquarters - MDA	98,609	87,059	85,906	86,453	70,355	69,855	69,855	69,855	637,947