Exhibit R-2, RDT&E Budget Item Justification							Date: February 2005	
APPROPRIATION/BUDGET ACTIVITY DEFENSE WIDE RDT&E BA 5				R-1 ITEM NOMENCLATURE JOINT ROBOTICS EMD			PE 0604709D8Z	
COST ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	20.780	32.669	13.745	13.737	14.608	14.613	14.902	15.232
ARTS	0.000	0.675	0.000	0.000	0.000	0.000	0.000	0.000
CRS	7.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RCSS	2.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000
JOINT SERVICE EOD	0.000	3.250	1.500	2.000	2.500	3.000	3.000	3.000
GLADIATOR	0.000	12.400	9.534	7.400	0.000	0.000	0.000	0.000
MDARS-E	10.680	1.000	2.711	0.000	0.000	0.000	0.000	0.000
NUSE2	0.000	8.594	0.000	1.029	0.000	0.000	0.000	0.000
NCDR-ROBOTICS GREENHOUSE	0.000	3.250	0.000	0.000	0.000	0.000	0.000	0.000
Material Infrastructure	0.000	3.500	0.000	0.000	0.000	0.000	0.000	0.000
Technology Maturation	0.000	0.000	0.000	3.308	12.108	11.613	11.902	12.232

A. Mission Description and Budget Item Justification:

This program is a budget activity level 5 based on the successful transition of robotic technologies from Concept and Technology Development activities to System Development and Demonstration (SDD) as part of an Evolutionary Strategy. Individual Services are responsible for requirements generation and procurement funding. Within the JRP, emphasis is on the development of robotic technologies that are usable in multi-service missions; provide capability in hazardous environments; provide improved battlefield efficiency using supervised autonomous operational capability; reduce or enhance force manpower and sustainability; and are affordable. This PE consolidates the DoD robotics program for Unmanned Ground Vehicles (UGV) and advances UGV concepts into SDD for programs of record.

The JRP is entering a planned transition period to re-orient this program element towards advancing and maturing robotics technologies for insertion into service SDD programs of record. This transition was approved by senior service representatives at the JRP Senior Steering Group meeting in November 2004. The Services agreed that after transition of the current programs of record, future SDD funding will become a Service responsibility. The JRP will concentrate on maturing specific technologies and interoperable capabilities for insertion into Service programs.

All Purpose Remote Transport System (ARTS):

ARTS is a self-propelled, remotely operated platform used to transport specialized explosive ordnance disposal (EOD) tools and equipment. Missions include airfield clearance, sub-surface UXO/mine excavation, remote movement of obstructions, WMD extraction/isolation, SMUD operations, and RECON. The ARTS consists of the basic mechanical transporter platform, a robotics control package, and attachment assemblies. USAF EOD personnel use the ARTS to neutralize or remove unexploded ordnance (UXO), and to diagnose and defeat Improvised Explosive Devices (IEDs). The original ARTS contract was structured as a build to print competitive procurement. The contract was awarded to Applied Research Associates, Inc. (ARA) of Albuquerque, New Mexico with manufacturing performed at ARA New England Division, South Royalton, VT. The transporter platform, Posi-track MD-70 is made by All Seasons Vehicle (ASV), Inc., Grand Rapids, Minnesota. AAC/YB is the Single Manager (SM) and Ogden Air Logistics Center (OO-ALC) is the Primary Inventory Control Activity (PICA) with mission area assignment responsibility for the robotics. ARA is producing a total of 72 ARTS under contract F08635-00-C-0027. Basic attachments developed for the ARTS include a Dragon water cannon mount, a Surface Clearance Blade Assembly, and a Robotic Backhoe Assembly. Preplanned Product Improvements (P3I) completed include: a fiber optic Alternate Control System (ACS), EMI Resistance, Improved Operator Control Station (IOCS) and lift/tie down points for sling load certification. Further P3I projects ongoing include a data feedback system (DFS), integration of the Joint Submunitions Clearance System (SCS), integration of the Harley Box Rake to replace the clearance blade, an updated/AF-wide ARTS trailer, and a study for follow-on ARTS radios.

- Design in JAUS compliance to the applicable ARTS software architecture and participate in experiments for all-service robot system interoperability.
- ARTS radio upgrade study to alleviate international frequency allocation problems that have made some current RF operations impossible.
- Design an ARTS support trailer suitable for worldwide AF missions.

B. Program Change Summary:

	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget	21.381	13.845	14.081	14.264
Current FY 2006 President's Budget Submission:	20.780	32.669	13.745	13.737
Total Adjustments:	-0.601	+18.824	-0.336	-0.527
Congressional program reductions:	-0.151	-0.776		
Congressional rescissions:				
Congressional increases:		19.600		
Reprogrammings:				
SBIR/STTR Transfer:	-0.450			
Other:			-0.336	-0.527

C. Other Program Funding Summary:
Not Applicable

D. Acquisition Strategy:
Not Applicable

E. Performance Metrics:
The Joint Robotics Program prepares and publishes its JRP Master Plan annually. The Plan contains detailed descriptions of the approximately 4 individual projects under this funding line. Each project description includes a task schedule with associated milestones, whereby progress against end goals can be measured. The cost, schedule and technical progress against these milestones is reviewed by DoD participants at semi-annual JRP Working Group meetings.

Exhibit R-2a, RDT&E Budget Item Justification							Date: February 2005	
APPROPRIATION/BUDGET ACTIVITY DEFENSE WIDE RDT&E BA 5				R-1 ITEM NOMENCLATURE JOINT ROBOTICS PROGRAM			PE 0604709D8Z	
COST ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
CRS	7.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000

A. Mission Description and Budget Item Justification:

The Common Robotic System (CRS) program is a generic and modular robotic system that can be retrofitted to many different military applications and vehicles. The U.S. Army approved the Operational Requirements Document (ORD) in September 1997. CRS is being integrated to the GSTAMIDS Block 0 countermine system and USMC Assault Breacher Vehicle (ABV) to allow remote obstacle breeching operations (minefields, earthworks, bunkers and obstacles such as clearing of rubble in a MOUT environment or a man-made obstacle covered by enemy fire). The Joint Project Office continues to support CRS integrated M1A1 Panther systems for contingency support in Iraq, Bosnia and Kosovo that have cleared over 500 mines and submunitions. Panther is a tank chassis with CRS system and mine rollers used to proof roads or fields for mines.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	7.600	0.000	0.000	0.000
RDT&E Articles Quantity * (as applicable)				

FY 2004 Accomplishments:

- Continued engineering and program management support for CRS system development.
- Continued SDD acquisition activity for the design, manufacture, and deliver of engineering prototypes for CRS.
- Conducted CRS IPR.
- Initiated CRS competitive Source Selection.
- Tested CRS contingency kits for GSTAMIDS Block 0.
- Delivered kits for the Assault Breacher and UGV ROP testing.
- Program ended due to loss of procurement funding.

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	7.600	0.000	0.000	0.000
RDT&E Articles Quantity * (as applicable)				

C. Other Program Funding Summary:
Not Applicable

D. Acquisition Strategy:
Not Applicable

E. Major Performers:
Not Applicable

Exhibit R-3 Cost Analysis (page 1)							Date:	February-2005				
DEFENSE-WIDE BUDGET ACTIVITY 5		Program Element PE 0604709D8Z					CRS					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development				3.141								
Ancilliary Hardware Development												
Systems Engineering				2.318								
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development				5.459								
Remarks:												
Development Support				0.240								
Software Development				0.600								
Training Development												
Integrated Logistics Support				0.180								
Configuration Management				0.180								
Technical Data												
GFE												
Subtotal Support				1.200								
Remarks:												

Exhibit R-3 Cost Analysis (page 2)							Date:	February-2005				
DEFENSE-WIDE BUDGET ACTIVITY 5		Program Element PE 0604709D8Z					CRS					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract
DT				0.661								
IOT&E												
Subtotal T&E				0.661								
Remarks:												
Contractor Engineering Support												
Government Engineering Support				0.160								
Program Management Support				0.120								
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management				0.280								
Remarks:												
Total Cost				7.600								
Remarks:												

Exhibit R-4, Schedule Profile																																							
																																				Date: February 2005					
Appropriation/Budget Activity DEFENSE WIDE RDT&E/B.A. #5												Program Element Number and Name PE 0604709D8Z – Joint Robotics Program																						Project Number and Name CRS					
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009				2010							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																C																								
Contingency Prototypes																																								
T&E Milestones																																								

R-4 Schedule Profile

Exhibit R-4a, Schedule Detail				Date: February 2005				
Appropriation/Budget Activity Research, Development, Test & Evaluation, Defense-Wide, Budget Activity 4	Program Element Number and Name PE 0603709D8Z Joint Robotics Program			Project Number and Name Common Robotic System (CRS)				
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
SDD	1-4Q	1-4Q	1-4Q					
Milestone C								
LRIP GSTAMIDS			3Q					

R-4a Schedule Profile

Exhibit R-2a, RDT&E Budget Item Justification							Date: February 2005	
APPROPRIATION/BUDGET ACTIVITY DEFENSE WIDE RDT&E BA 5				R-1 ITEM NOMENCLATURE JOINT ROBOTICS PROGRAM			PE 0604709D8Z	
COST ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
RCSS	2.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000

A. Mission Description and Budget Item Justification:

The Robotic Combat Support System (RCSS) Program is an upgrade approach from the Product Improved Mini-Flail (PIMF). The PIMF has proven effective in Bosnia and Kosovo, as well as in Afghanistan, as a contingency asset. RCSS threshold requirements include anti-personnel mine clearing and neutralization, improved reliability and human-machine interface, wire obstacle breaching, remotely deployed smoke and obscurants, and the capability to carry soldier loads. P3I requirements include advanced controls, remotely delivered special munitions to support dismounted operations, hands-free control using dismounted soldier leader-follower technology, and mechanical devices that will be used to emplace demolitions and special breeching systems. A Mission Need Statement (MNS) and an Operational Requirements Document (ORD) have been approved by Army Training and Doctrine Command (TRADOC). Procurement of COTS contingency RCSS system began in FY04 based on urgent requirement to provide countermine capability to the operating force. Procurement continues through FY 2006, while system engineering to develop full ORD required capability will be developed and integrated into the operational fleet.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	2.500	0.000	0.000	0.000
RDT&E Articles Quantity * (as applicable)				

FY 2004 Accomplishments:

- Revised Acquisition Strategy to meet War on Terrorism Urgent Requirements.
- Conducted market survey to determine availability of COTS capability.
- Selected RCSS COTS vendor.
- Program ended due to loss of procurement funding

C. Other Program Funding Summary: Not Applicable

D. Acquisition Strategy: Not Applicable

E. Major Performers: Not Applicable

Exhibit R-3 Cost Analysis (page 1)							Date:	February 2005				
DEFENSE-WIDE BUDGET ACTIVITY 5			Program Element PE 0604709D8Z				RCSS					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPFF			0.779								
Ancilliary Hardware Development												
Systems Engineering				0.602								
Licenses												
Tooling				0.052								
GFE												
Award Fees												
Subtotal Product Development				1.433								
Remarks:												
Development Support				0.052								
Software Development				0.086								
Training Development				0.105								
Integrated Logistics Support				0.085								
Configuration Management				0.075								
Technical Data												
GFE												
Subtotal Support				0.403								
Remarks:												

Exhibit R-3 Cost Analysis (page 2)							Date:	February-2005				
DEFENSE-WIDE BUDGET ACTIVITY 5		Program Element PE 0604709D8Z					RCSS					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract
DT				0.206								
IOT&E				0.240								
Initial Verification Testing												
Subtotal T&E				0.446								
Remarks:												
Contractor Engineering Support				0.038								
Government Engineering Support				0.120								
Program Management Support				0.060								
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management				0.218								
Remarks:												
Total Cost				2.500								
Remarks:												

Exhibit R-4, Schedule Profile			Date: February 2005
Appropriation/Budget Activity DEFENSE WIDE RDT&E/B.A. #5		Program Element Number and Name PE 0604709D8Z – Joint Robotics Program	Project Number and Name RCSS

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009				2010			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																				
Log Demo					MS B				MS C																											
Safety Testing																																				
T&E Milestones																																				
Independent Verification Test																																				
COTS Procurement																																				
Deliveries										1	18																									

R-4 Schedule Profile

Exhibit R-4a, Schedule Detail		Date: February 2005
Appropriation/Budget Activity Research, Development, Test & Evaluation, Defense-Wide, Budget Activity 5	Program Element Number and Name PE 0604709D8Z Joint Robotics Program	Project Number and Name Robotic Combat Support System (RCSS)

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Milestone A								
Contract Preparation	1-4Q	1-4Q						
CTD Contract Award		1Q						
CTD	1-4Q	1Q						
Milestone B								
Contract Preparation	4Q							
SDD Contract Award								
SDD								
Safety Test								
Type Classification testing								
IOT&E								
COTS Procurement Contract								
Full Rate Production								
First Unit Equipped								

R-4a Schedule Profile

Exhibit R-2a, RDT&E Budget Item Justification							Date: February 2005	
APPROPRIATION/BUDGET ACTIVITY DEFENSE WIDE RDT&E BA 5				R-1 ITEM NOMENCLATURE JOINT ROBOTICS PROGRAM			PE 0604709D8Z	
COST ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
JOINT SERVICE EOD	0.000	3.250	1.500	2.000	2.500	3.000	3.000	3.000

A. Mission Description and Budget Item Justification:

This project supports the lifecycle management of EOD equipment for all four military Services. This project will conduct Concept and Technology Development efforts to determine maturity of existing technology and exploration of new concepts to meet EOD requirements. All four Services have the Remote Ordnance Neutralization System (RONS) fielded with their EOD users, and this program includes the RONS Continuous Improvement Program to identify, develop, and qualify improvements to the system. The Joint EOD community has a requirement for a small Man Transportable Robotic System that can conduct EOD tasks to include the use of a manipulator arm to render safe or neutralize unexploded ordnance in confined areas that current systems have difficulty accessing. Also, the Joint EOD community needs increased autonomy in its robotic platforms. The acquisition strategy for Joint Service EOD Robotics includes the conduct of an Analysis of Alternatives by the Joint users, development of a requirements document by the Joint Users, competitive solicitation of a development contract, with built-in options for production, upgrades, support and spare parts. Each Service individually funds for their production, upgrade, support, and spares.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	0.000	3.250	1.500	2.000
RDT&E Articles Quantity * (as applicable)				

FY 2005 Plans:

- Achieve Full Rate Production Decision for EOD Man Transportable Robotic System
- Complete Multiple Improvement Software Integration for RONS CIP

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	0.000	3.250	1.500	2.000
RDT&E Articles Quantity * (as applicable)				

FY 2006-2007 Plans:

- Initiate EOD Man Transportable Robotic System incremental improvements as defined in requirements document.

- Conduct formal Analysis of Alternatives for the Next Generation of DOD EOD Robotic Systems
- Initiate Technology Development phase of Next Generation DOD EOD Robotic Systems Project

C. Other Program Funding Summary:
Not Applicable

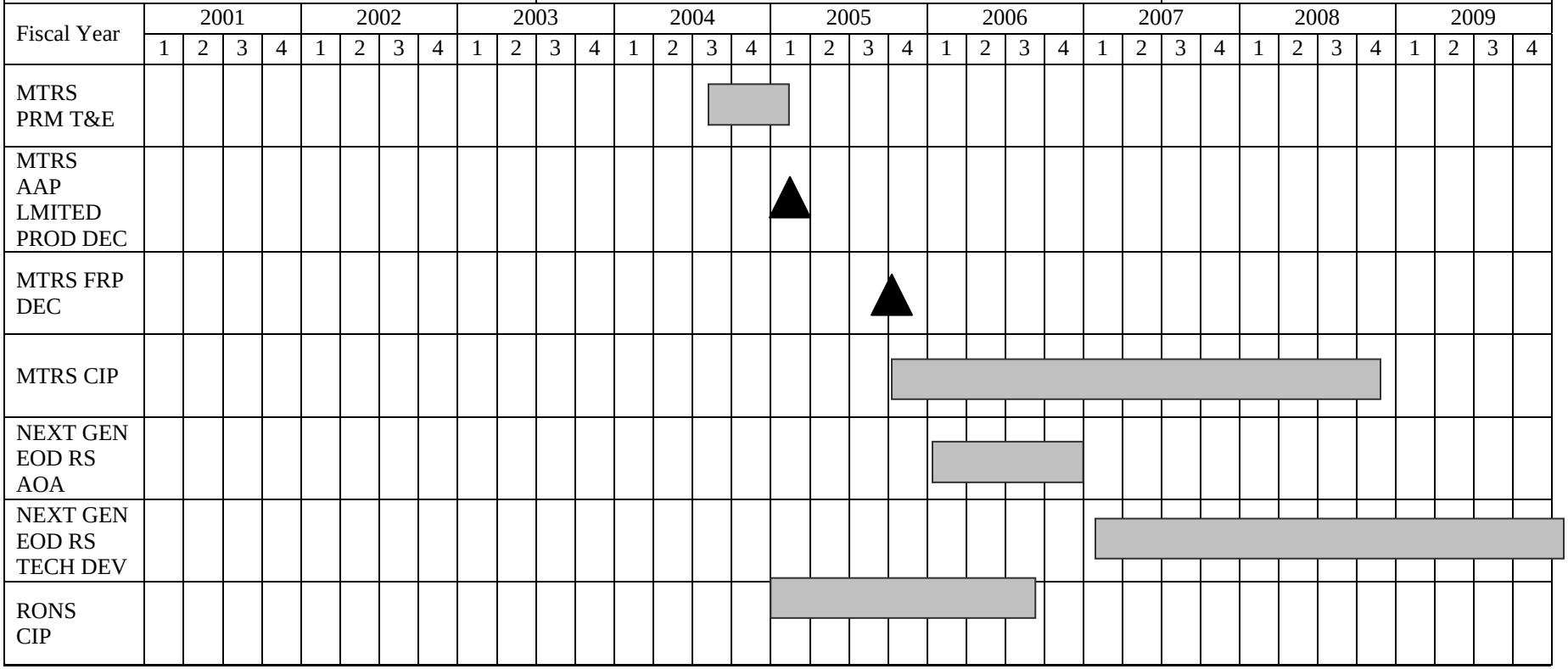
D. Acquisition Strategy:
Not Applicable

E. Major Performers:
Not Applicable

Exhibit R-3 Cost Analysis (page 1)								Date:	February-2005				
DEFENSE-WIDE BUDGET ACTIVITY 5			Program Element PE 0604709D8Z					JOINT SERVICE EOD					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
Primary Hardware Development						0.500		0.400					
Ancilliary Hardware Development													
Systems Engineering						0.250		0.100					
Licenses													
Tooling													
GFE													
Award Fees													
Subtotal Product Development						0.750		0.500					
Remarks:													
Development Support						0.100		0.050					
Software Development						0.200		0.050					
Training Development						0.200		0.100					
Integrated Logistics Support						0.100		0.100					
Configuration Management						0.050		0.100					
Technical Data						0.100		0.100					
GFE													
Subtotal Support						0.750		0.500					
Remarks:													

Exhibit R-3 Cost Analysis (page 2)								Date:	February-2005				
DEFENSE-WIDE BUDGET ACTIVITY 5		Program Element PE 0604709D8Z						**JOINT SERVICE EOD ROBOTICS**					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
DT						0.400		0.200					
IOT&E						0.100		0.050					
Initial Verification Testing													
Subtotal T&E						0.500		0.250					
Remarks:													
Contractor Engineering Support						0.200		0.100					
Government Engineering Support						0.200		0.100					
Program Management Support						0.100		0.050					
Program Management Personnel													
Travel													
Labor (Research Personnel)													
Miscellaneous													
Subtotal Management						500.000		1.500					
Remarks:													
Total Cost						3.250		2					
Remarks:													

Exhibit R-4, Schedule Profile			Date: February 2005
Appropriation/Budget Activity DEFENSE WIDE RDT&E/B.A. #5		Program Element Number and Name PE 0604709D8Z – Joint Robotics Program	Project Number and Name Joint Service EOD Robotics



R-4 Schedule Profile – Item No. 20-3 of 20-4

Exhibit R-4a, Schedule Detail								Date: February 2005
Appropriation/Budget Activity Research, Development, Test & Evaluation, Defense-Wide, Budget Activity 5	Program Element Number and Name PE 0604709D8Z Joint Robotics Program				Project Number and Name Joint Service EOD Robotics			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
MTRS PRM T&E				1Q				
MTRS AAP Limited Prod Dec				1Q				
MTRS FRP Dec				4Q				
MTRS CIP				4Q	1-4Q	1-4Q	1-4Q	
Next Gen EOD RS AOA					1-4Q			
Next Gen EOD RS Tech Dev						1-4Q	1-4Q	1-4Q
RONS CIP				1-4Q	1-3Q			

R-4a Schedule Profile

Exhibit R-2a, RDT&E Budget Item Justification							Date: February 2005	
APPROPRIATION/BUDGET ACTIVITY DEFENSE WIDE RDT&E BA 5				R-1 ITEM NOMENCLATURE JOINT ROBOTICS PROGRAM			PE 0604709D8Z	
COST ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
GLADIATOR	0.000	12.400	9.534	7.400	0.000	0.000	0.000	0.000

A. Mission Description and Budget Item Justification:

The Gladiator Program is a USMC initiative based on the Joint Army-Marine Corps Tactical Unmanned Vehicle (TUV) ORD originated by the U.S. Army Infantry School. Mission Need Statement (MNS) INT 12.1.1 (dated 4 November 1993) validated the need for a tactical unmanned ground vehicle system, and the ORD was approved by the Army in August 1995 and by the Marine Corps in May 1996. Changes in Service deficiencies and required capabilities have led both Services to reevaluate the existing ORD and to initiate efforts to revise it or to approve new requirements documents for robotic systems supporting the tactical commander. The Marine Corps then initiated Change 1 to the MNS in April 2001 and a Marine Corps ORD for the Gladiator Tactical Unmanned Ground Vehicle was approved in July 2004 to support the dismounted infantry of the Marine Ground Combat Element (GCE) with the organic unmanned capability to remote combat tasks including scout/surveillance. The system will reduce risk and neutralize threats to Marines across the full spectrum of conflict and military operations. The Gladiator is a teleoperated/semi-autonomous, small-to-medium sized, highly mobile UGV with, initially, the basic capability to conduct scout/surveillance missions and to carry various mission payloads for specific tasks. It will be inherently simple, durable, multi-functional, and easily transported. In the conduct of Operational Maneuver From The Sea (OMFTS), Ship To Objective Maneuver (STOM), Sustained Operations Ashore (SOA), and Operations Other Than War (OOTW), the Gladiator will enhance the ability to accomplish assigned missions. Operating just forward of the GCE units, Gladiator will perform basic scouting/surveillance, obstacle breaching, lethal and non-lethal direct fire, logistic support, and NBC reconnaissance tasks while permitting the operator to remain covered or concealed. The basic Marine Corps system will consist of a mobile base unit (MBU), an OCU, and specific mission payload modules (MPMs). Initial MPMs will include Shoulder-launched Multi-purpose Assault Weapon (SMAW), Anti-Personnel Obstacle Breaching System (APOBS), Light Vehicle Obscurrant Smoke System (LVOSS), M240 and M249 Machine Guns, and current NBC detectors.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	0.000	12.400	9.534	7.400
RDT&E Articles Quantity * (as applicable)				

FY 2004 Accomplishments:

- Program remained in CTD.
- Completed detailed design of Gladiator.
- Completed Future Naval Capability demonstrations.
- Completed System Design and Development (SDD) acquisition documentation.
- Released SDD acquisition package to contractors.
- Successfully competed within the Marine Corps for Gladiator funding in the FY 06-11 POM.

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	0.000	12.400	9.534	7.400
RDT&E Articles Quantity * (as applicable)				

FY 2005-2006 Plans:
- Initiate SDD.
- Complete PDR.
- Begin preparation of MS C documentation.

C. Other Program Funding Summary:
Gladiator is a cooperative program of the Office of Naval Research and the DoD Joint Robotics Program. The ONR is responsible for funding the major portion of the technology demonstration, while the JRP continues to manage the Gladiator program through SDD to production in support of Marine Corps requirements. FNC funding, under Autonomous Operations is:
FY 2002 5.0 million
FY 2003 2.5 million
FY 2004 1.5 million

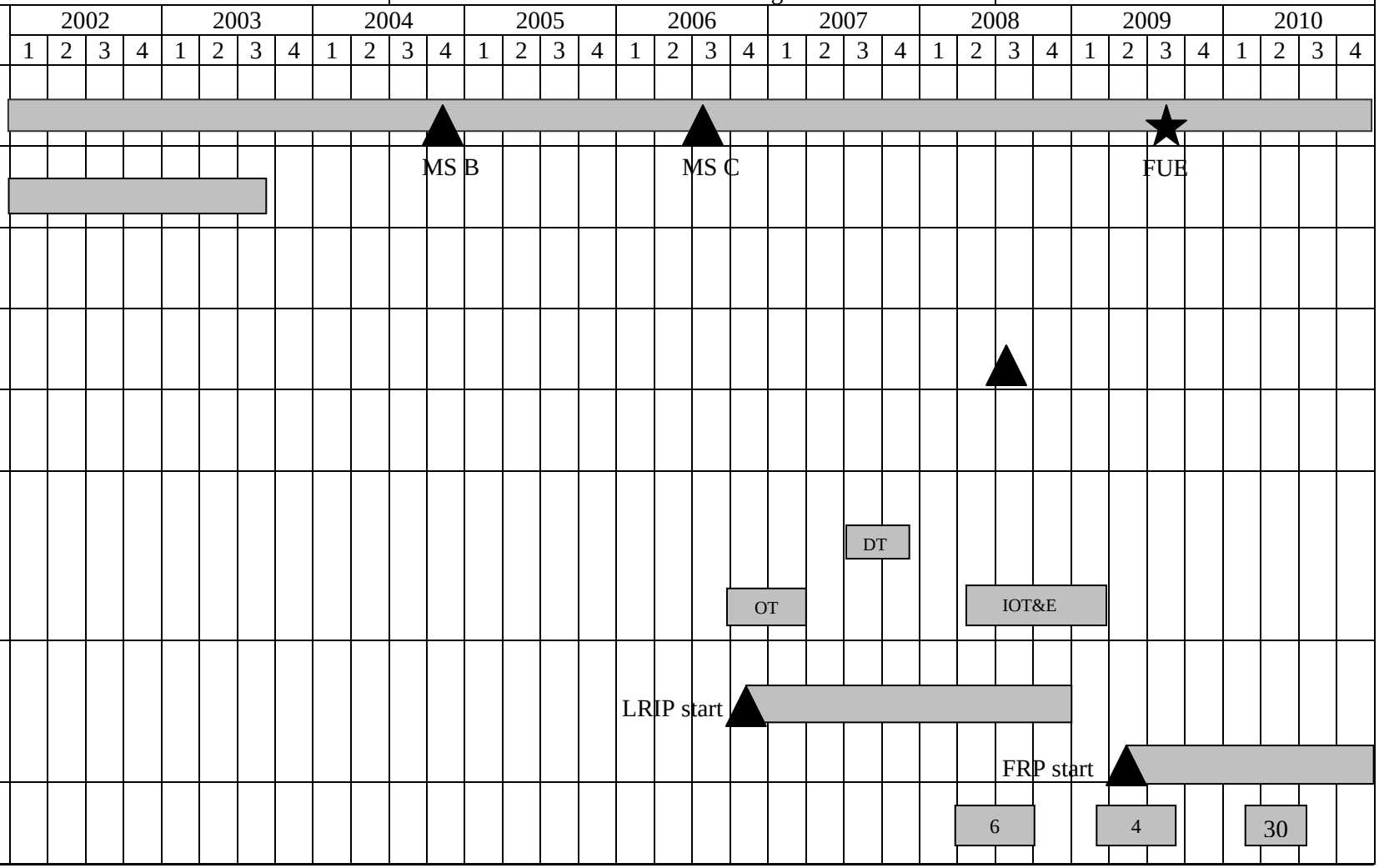
D. Acquisition Strategy:
Not Applicable

E. Major Performers:
Not Applicable

Exhibit R-3 Cost Analysis (page 1)							Date:	February-2005				
DEFENSE-WIDE BUDGET ACTIVITY 5		Program Element PE 0604709D8Z					Gladiator					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	CPFF					6.000		2.813				
Ancilliary Hardware Development												
Systems Engineering						0.500		0.223				
Licenses												
Tooling						0.585		0.052				
GFE												
Award Fees												
Subtotal Product Development				0.000		7.085		4.539				
Remarks:												
Development Support						0.500		1.000				
Software Development						0.500		1.000				
Training Development						0.500		0.400				
Integrated Logistics Support						1.315		0.400				
Configuration Management						0.500		0.061				
Technical Data												
GFE												
Subtotal Support				0.000		3.315		2.861				
Remarks:												

Exhibit R-3 Cost Analysis (page 2)							Date:	February-2005				
DEFENSE-WIDE BUDGET ACTIVITY 5		Program Element PE 0604709D8Z					Gladiator					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract
DT						1.000		1.634				
IOT&E												
Initial Verification Testing												
Subtotal T&E				0.000		1.000		1.634				
Remarks:												
Contractor Engineering Support						0.500		0.100				
Government Engineering Support						0.250		0.200				
Program Management Support						0.250		0.200				
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management				0.000		1.000		0.500				
Remarks:												
Total Cost						12.400		9.534				
Remarks:												

Exhibit R-4, Schedule Profile			Date: February 2005
Appropriation/Budget Activity DEFENSE WIDE RDT&E/B.A. #5		Program Element Number and Name PE 0604709D8Z – Joint Robotics Program	Project Number and Name GLADIATOR



R-4 Schedule Profile

Exhibit R-4a, Schedule Detail		Date: February 2005
Appropriation/Budget Activity Research, Development, Test & Evaluation, Defense-Wide, Budget Activity 5	Program Element Number and Name PE 0604709D8Z Joint Robotics Program	Project Number and Name Gladiator

Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone A								
Contract Preparation	1-2Q							
CTD Contract Award	2Q							
CTD	2-4Q	1-4Q						
Milestone B			4Q					
Contract Preparation			2-4Q					
SDD Contract Award				1 Q				
SDD				1-4Q	1-4Q	1-4Q		
Developmental Test					3-4Q			
Log Demo							3Q	
Operational Test							2-4Q	
Milestone C						2Q		
Low Rate Initial Production						3-4Q	1-4Q	
IOT&E							2-4Q	
Full Rate Production								2Q
First Unit Equipped								3Q

R-4a Schedule Profile

Exhibit R-2a, RDT&E Budget Item Justification							Date: February 2005	
APPROPRIATION/BUDGET ACTIVITY DEFENSE WIDE RDT&E BA 5				R-1 ITEM NOMENCLATURE JOINT ROBOTICS PROGRAM			PE 0604709D8Z	
COST ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
MDARS-E	10.680	3.480	2.711	0.000	0.000	0.000	0.000	0.000

A. Mission Description and Budget Item Justification:

The Mobile Detection Assessment Response System – Exterior (MDARS-E) will provide commanders at Army, Air Force, Navy, and Defense Logistics Agency (DLA) facilities with the capability to conduct semi-autonomous, random patrols and surveillance activities, barrier assessment, and theft detection functions. MDARS-E can be used in a variety of installations: chemical storage facilities, general storage yards; depots; Arms, Ammunition, and explosives (AA&E) storage areas; air fields; rail-yards; and port facilities. The system will autonomously conduct surveillance activities, conduct lock interrogations, and assess the status of facility barriers such as AA&E storage bunkers. Capabilities include the detection of unauthorized personnel, verification of barriers and product status, and the remote investigation of an alarm source.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	10.680	3.480	2.711	0.000
RDT&E Articles Quantity * (as applicable)				

FY 2004 Accomplishments:

- Conduct Critical Design Review
- Identify Early User Appraisal (EUA) Activities for Army and Air Force Sites.
- Deliver First Pre-Production Platforms.
- Conduct Production Qualifications Test (PQT) 1a.
- Explore Tactical/Contingency Applications.
- Continue System Integration of Sensor Technologies.
- Continue C2 Software Engineering and Test.

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	10.680	3.480	2.711	0.000
RDT&E Articles Quantity * (as applicable)				

FY 2005-2006 Plans:

- Conduct PQT 1b.
- Conduct Early User Appraisal Training (EUA) at Hawthorne Army Depot and Nellis Air Force Base, NV.
- Conduct PQT2.
- Conduct New Equipment Training.
- Initiate Initial Operational Test and Evaluation.

C. Other Program Funding Summary:
Not Applicable

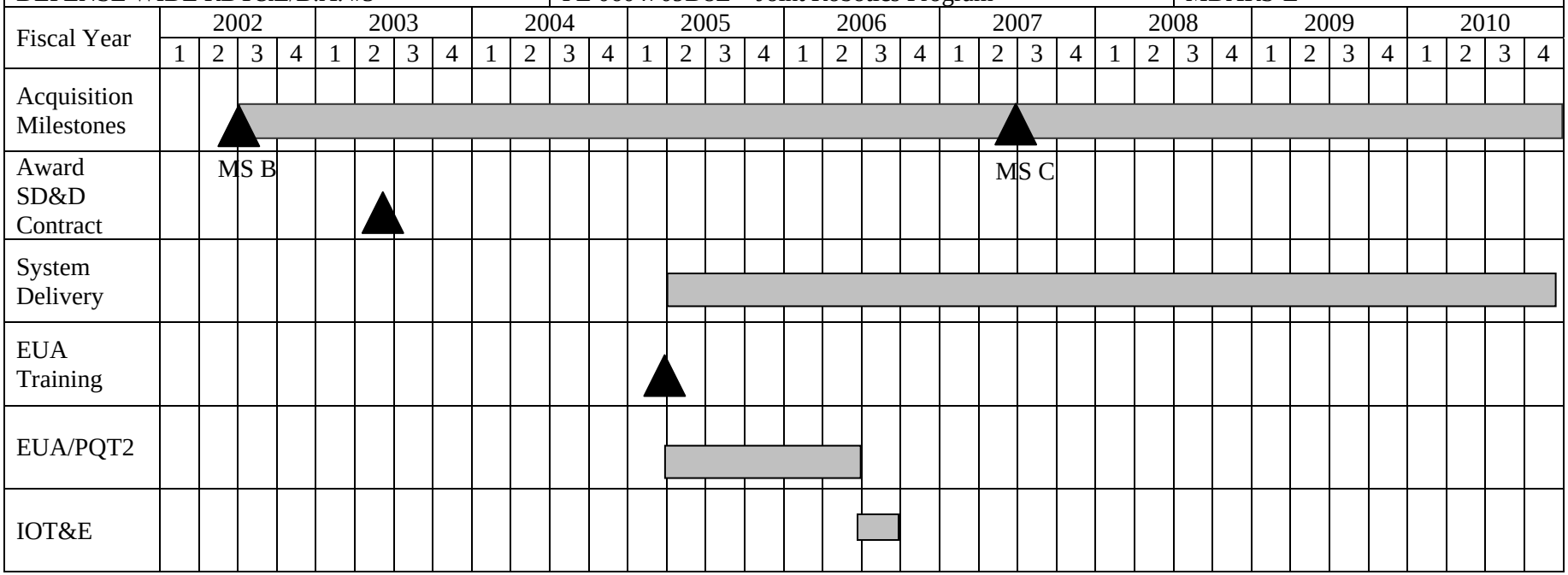
D. Acquisition Strategy:
Not Applicable

E. Major Performers:
Not Applicable

Exhibit R-3 Cost Analysis (page 1)							Date:	February 2005				
DEFENSE-WIDE BUDGET ACTIVITY 5			Program Eleement PE 0604709D8Z				MDARS-E					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development				10.680		3.480		2.711				
Ancilliary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development				10.680		3.480		2.711				
Remarks:												
Development Support												
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support				0.000		0.000		0.000				
Remarks:												

Exhibit R-3 Cost Analysis (page 2)							Date:	February 2005				
DEFENSE-WIDE BUDGET ACTIVITY 5		Program Element PE 0604709D8Z					MDARS-E					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total Pys Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract
DT												
IOT&E												
Subtotal T&E				0.000		0.000		0.000				
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management				0.000		0.000		0.000				
Remarks:												
Total Cost				10.680		3.480		2.711				
Remarks:												

Exhibit R-4, Schedule Profile			Date: February 2005
Appropriation/Budget Activity DEFENSE WIDE RDT&E/B.A. #5		Program Element Number and Name PE 0604709D8Z – Joint Robotics Program	Project Number and Name MDARS-E



R-4 Schedule Profile

Exhibit R-4a, Schedule Detail		Date: February 2005
Appropriation/Budget Activity RDT&E, Defense Wide/ Budget Activity 5	Program Element Number and Name PE 0604709D8Z	Project Number and Name MDARS-E

Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Milestone B IPR	3Q							
Award SD&D contract		2Q						
System Delivery				2Q				
EUA Training				2Q				
EUA/PQT2								
Initiate				2Q				
Complete					2Q			
IOT&E					3Q			
Milestone C IPR						3Q		

R-4a Schedule Profile

Exhibit R-2a, RDT&E Budget Item Justification							Date: February 2005	
APPROPRIATION/BUDGET ACTIVITY DEFENSE WIDE RDT&E BA 5				R-1 ITEM NOMENCLATURE JOINT ROBOTICS PROGRAM			PE 0604709D8Z	
COST ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
NUSE2	0.000	11.844	0.000	1.029	0.000	0.000	0.000	0.000

A. Mission Description and Budget Item Justification:

NUSE^2 is a tightly coupled team of R&D, modeling, and simulation resources that provide the Nation with the capability to develop, evaluate, and support Unmanned Systems throughout the life cycle. NUSE^2 will serve the entire Unmanned Systems (UAV, UGV, USV, and UUV) community as a long-term, life cycle resource. NUSE^2 provides the Unmanned Systems community unprecedented capability to conduct experimentation and promote technology transfer by fostering a synergistic and synchronized relationship between government, contractors, commercial, small business, and academia with scientists, technologists, product developers, testers, and users. The focus of this effort is the successful integration of all unmanned systems to include air, ground, surface, and underwater systems and the interoperability of those unmanned systems with manned systems on the Joint battlefield.

Currently, the NUSE^2 team members consist of the Joint Robotics Program Managers and associates including: the RS JPO, AFRL, ARL, AMRDEC, TARDEC, Space and Naval Warfare Systems Center (SPAWAR), PM-FPS, Product Manager Robotic and Unmanned Systems (PM-RUS), the Navy Coastal Systems Station (NCSS), Program Manager (Ships)-Explosive Ordnance Disposal (PMS-EOD), and Air Armament Center's Agile Combat Support Systems Program Office (AAC/YBC), the Naval Surface Warfare Center-Crane (NSWC), and the Office of the Under Secretary of Defense's Combating Terrorism Special Operations, TSWG. These initial team members provide a wide range of facilities, terrain, and environments to support Unmanned Systems development. A goal of NUSE^2 is to expand team membership as the initiative gets established and matures.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	0.000	11.844	0.000	1.029
RDT&E Articles Quantity * (as applicable)				

FY 2005 Plans:

- Continue to expand NUSE2 exposure and capabilities to serve as the dedicated set of experimentation tools for Unmanned Systems.
- Conduct experimentation in the following efforts and areas:
  -Warfighter assessment of robotics technologies
  - SKISKY
  - JAUS Common OCU Experiment #3

- REDCAR II
- Semi-autonomous Capability for RONS
- Networked Communications for UGVs
- Support of DARPA in its Grand Challenge II
- COUGAR VI

C. Other Program Funding Summary:
Not Applicable

D. Acquisition Strategy:
Not Applicable

E. Major Performers:
Not Applicable

Exhibit R-3 Cost Analysis (page 1)							Date:	February-2005				
DEFENSE-WIDE BUDGET ACTIVITY 5		Program Element PE 0604709D8Z					NUSE2					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancilliary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development						0.000						
Remarks:												
Development Support						3.150						
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support				0.000		3.150						
Remarks:												

Exhibit R-3 Cost Analysis (page 2)							Date:	February-2005				
DEFENSE-WIDE BUDGET ACTIVITY 5		Program Element PE 0604709D8Z					NUSE2					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	2004 Cost	2004 Award Date	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost To Complete	Total Cost	Target Value of Contract
DT												
IOT&E												
Experimentation Support						5.444						
Subtotal T&E						5.444						
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management						0.000						
Remarks:												
Total Cost						8.594						
Remarks:												

Exhibit R-4, Schedule Profile			Date: February 2005
Appropriation/Budget Activity DEFENSE WIDE RDT&E/B.A. #5	Program Element Number and Name PE 0604709D8Z – Joint Robotics Program		Project Number and Name NUSE2

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009				2010			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Warfighter Assessments															▲																						
SKISKY															▲																						
JAUS OPC																▲																					
REDCAR II																▲																					
Semi-Auton RONS																▲																					
Networked Comms																		▲																			
DARPA Grand Challenge																▲																					
COUGAR IV																			▲																		

R-4 Schedule Profile

Exhibit R-4a, Schedule Detail				Date: February 2005				
Appropriation/Budget Activity Research, Development, Test & Evaluation, Defense-Wide, Budget Activity 5	Program Element Number and Name PE 0604709D8Z Joint Robotics Program EMD			Project Number and Name NUSE2				
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Warfighter Assessment				3Q				
SKISKY				3Q				
JAUS OPC #3				4Q				
REDCAR II				4Q				
Semi-Autonomous RONS				4Q				
Networked Comms for UGVs					2Q			
DARPA Grand Challenge Support				4Q				
COUGAR IV					3Q			

R-4a Schedule Profile

Exhibit R-2a, RDT&E Budget Item Justification							Date: February 2005	
APPROPRIATION/BUDGET ACTIVITY DEFENSE WIDE RDT&E BA 5				R-1 ITEM NOMENCLATURE JOINT ROBOTICS PROGRAM			PE 0604709D8Z	
COST ($ in millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
NCDR-ROBOTICS GREENHOUSE	0.000	3.250	0.000	0.000	0.000	0.000	0.000	0.000

A. Mission Description and Budget Item Justification:

The National Center for Defense Robotics (NCDR), Robotics Greenhouse will integrate and enhance robotic technologies, commands, and processes to achieve more effective navigation and operation of UGVs used for explosive ordnance disposal, physical security, reconnaissance, and other defense applications. Research and development will be conducted in three technology areas which are essential for future warfighting applications, to include 1) Platform Technologies, i.e., mobility, power, manipulation, health maintenance, and materials; 2) Interface Technologies, i.e., communications and human robot interaction; and 3) Autonomous Technologies, i.e., perception, positioning, navigation, path planning, mission planning, cooperative behaviors, learning and adaptation, and computational hardware. The successful model of the "Greenhouse Initiative" developed in Pennsylvania, in order to form an industry-led national consortium of leading corporations and research institutions to direct the future, collaborative development efforts of key enabling semi-autonomous robotics technologies and supporting disciplines, such as systems engineering skills and standards for interoperability. A key objective of the "Robotics Greenhouse" will be to develop systems engineering processes specific to robotics that optimize the trade-off between the need to accelerate the transition of technology yet at the same time addresses the need to ensure reliability, maintainability, upgradeability, and similar requirements.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/Effort/Subtotal Cost	0.000	3.250	0.000	0.000
RDT&E Articles Quantity * (as applicable)				

FY2005-2006 Plans:

- Identify key, enabling technologies in such areas as sensors, artificial intelligence, processors, and human/computer interaction, establish priorities and targets, bring together leading edge companies and renowned research universities to perform pre-competitive development, and coordinate licensing agreements.
- Establish the criteria, guidelines, and content for establishing robotics systems engineering education programs to be offered at designated universities leading to graduate level degrees as well as post-graduate certification on a continuing education basis.

- Convene collaborative efforts expected to identify common needs and critical system requirements, specify key technology drivers, recommend specific standards, and produce an interoperability roadmap.

C. Other Program Funding Summary:
Not Applicable

D. Acquisition Strategy:
Not Applicable

E. Major Performers:
Not Applicable

Exhibit R-3 Cost Analysis (page 1)							Date:	February 2005				
DEFENSE-WIDE BUDGET ACTIVITY 5			Program Element PE 0604709D8Z				NCDR-Robotics Greenhouse					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 2004 Cost	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancilliary Hardware Development												
Systems Engineering												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development												
Remarks:												
Development Support				3.250								
Software Development												
Training Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
GFE												
Subtotal Support				3.250								
Remarks:												

Exhibit R-3 Cost Analysis (page 2)							Date:	February 2005				
DEFENSE-WIDE BUDGET ACTIVITY 5			Program Element PE 0604709D8Z				NCDR Robotics Greenhouse					
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total 2004 Cost	2005 Cost	2005 Award Date	2006 Cost	2006 Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
DT												
IOT&E												
Initial Verification Testing												
Subtotal T&E												
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Program Management Personnel												
Travel												
Labor (Research Personnel)												
Miscellaneous												
Subtotal Management												
Remarks:												
Total Cost				3.250								
Remarks:												

Exhibit R-4, Schedule Profile																																			
Date: February 2005																																			
Appropriation/Budget Activity DEFENSE WIDE RDT&E/B.A. #5									Program Element Number and Name PE 0604709D8Z – Joint Robotics Program																				Project Number and Name NCDR-Robotics Greenhouse							
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009				2010			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Identify Key Technologies														▲																						
Evaluate Semi-Autonomy Capabilities															▲																					
Integration Efforts															▬	▬	▬	▬	▬																	
Developmental Evaluation																				▲																

R-4 Schedule Profile

Exhibit R-4a, Schedule Detail					Date: February 2005			
Appropriation/Budget Activity DEFENSE WIDE RDT&E/B.A. #5	Program Element Number and Name PE 0604708DZ Joint Robotics Program				Project Number and Name NCDR-Robotics Greenhouse			
Schedule Profile	FY 2002	FY 2003	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009
Identify Key Technologies for Semi-Autonomy				2Q				
Evaluate Semi-Autonomy Capabilities				3Q				
Integration Efforts				3Q-4Q	1Q-4Q			
Developmental Evaluation					4Q			

R-4a Schedule Profile