

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

BUDGET ACTIVITY 5 - System Development and Demonstration		PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev							
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	2927532								2927532
F52 FCS- RECON PLATFORMS & SENSORS	41813								41813
F53 FCS- UNMANNED GROUND VEHICLES (UGV)	104301								104301
F54 UNATTENDED SENSORS	10391								10391
F55 SUSTAINMENT	104302								104302
F57 MANNED GROUND VEHICLES	516217								516217
F61 S o S Engineering and Program Management	2150508								2150508

A. Mission Description and Budget Item Justification: The Army's Future Combat System (Brigade Combat Team) (FCS (BCT)) is a combined arms unit of modular design developed as an integrated, advanced network of manned and unmanned advanced air- and ground based maneuver, maneuver support, sustainment and training systems. The FCS networked capability will enable a quantum leap forward in improved force protection, lethality, and situational awareness/ understanding for our fighting forces currently unachievable. The FCS (BCT) employs advanced Intelligence, Surveillance and Reconnaissance (ISR) systems and real-time sensor-shooter linkages, with an integrated, network of manned and unmanned platforms coupled with sophisticated Battle Command applications and services to ensure information and decision superiority. FCS is designed to enable the Army's most valuable weapon - the Soldier with capabilities to perceive, comprehend, shape and dominate the battlefield. When fully operational, the FCS (BCT) will provide the Army and the joint force with the unprecedented capability to see the enemy first, understand his intentions, act first, and finish the enemy decisively. The Army's first modernization effort in nearly four decades; the FCS (BCT) is the embodiment of the modular force, designed for full spectrum, joint and multinational operations. FCS will employ a Service Oriented Architecture (SOA) that will network existing systems, systems under development and future systems to meet the requirements of the Army's Future Force. The FCS (BCT) is adaptable to traditional warfare as well as complex, irregular warfare in various rural and urban terrain and can also be adapted to Stability and Support and humanitarian missions such as disaster relief. The FCS (BCT) is the centerpiece of the Army's Modernization Program.

IAW Section 214 of the FY2006 National Defense Authorization Act, the Projects associated with this Program Element are to have their own unique Program Elements commencing with FY2008 President's Budget request. Therefore, this Program Element and its associated Projects has been retired and replaced with their own Program Elements. The following table shows the crosswalk from the old structure to the new structure:

Old PE/Project	New Project Title	New PE/Project
0604645A/F52	FCS Reconnaissance Platforms	0604662A/FC3
0604645A/F53	FCS Unmanned Ground Vehicles	0604663A/FC4
0604645A/F54	FCS Unattended Ground Sensors	0604664A/FC5
0604645A/F55	FCS System of Systems Engineering &	0604661A/FC2

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BUDGET ACTIVITY

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0604645A/F57	Program Management FCS Manned Ground Vehicles & Common Ground Vehicle Components	0604660A/FC1
0604645A/F61	FCS System of Systems Engineering & Program Management	0604661A/FC2
	FCS Network Hardware & Software	0604665A/FC6
	FCS Spin Out Technology/Capability Integration	0604666A/FC7

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<u>B. Program Change Summary</u>	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008/2009)	2956921		
Current BES/President's Budget (FY 2009)	2927532		
Total Adjustments	-29389		
Congressional Program Reductions			
Congressional Rescissions			
Congressional Increases			
Reprogrammings	53821		
SBIR/STTR Transfer	-83210		
Adjustments to Budget Years			

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BUDGET ACTIVITY 5 - System Development and Demonstration		PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev						PROJECT F52	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
F52 FCS- RECON PLATFORMS & SENSORS	41813								41813

A. Mission Description and Budget Item Justification: The Army's Future Combat System (Brigade Combat Team) (FCS (BCT)) is a joint system of systems consisting of a network and a combination of manned and unmanned systems that use an advanced network architecture to enable levels of joint connectivity, situational awareness and understanding, and synchronized operations previously unachievable. It is designed to interact with and enhance the Army's most valuable weapon - the Soldier. When fully operational, FCS will provide the Army and the joint force unprecedented capability to see the enemy, engage him on our terms, and defeat him on the 21st Century battlefield. The Army's first modernization effort in nearly four decades; FCS is the embodiment of the modular force, a modular system designed for "full spectrum" operations. It will network existing systems, systems already under development and future systems to be developed to meet the requirements of the Army's Future Force. It is adaptable to traditional warfare as well as complex, irregular warfare in various rural and urban terrains. It can also be adapted to civil support, such as disaster relief. FCS is the #1 priority acquisition program for the Army.

This Future Combat System(FCS) project covers all air platforms (Class I, Class II, Class III, and Class IV) and includes contractor development, engineering, prototype procurement and integration, test, and assembly. The UAVs are the eyes, the ears and the gun sights of the BCT.

The Class I Unmanned Aerial Vehicle (UAV) provides the dismounted soldier Reconnaissance, Surveillance, and Target Acquisition (RSTA). It has the ability to hover and stare at military operations on rural and urban terrain. The Class I senses and provides imaging to recognize personnel, day and night. It provides targeting information to the FCS network during day and night operations and in adverse weather from 500 feet. Weighing less than 30 pounds, the air vehicle operates in complex urban and rural terrains with a vertical take-off and landing capability. It is carried in a standard MOLLE and is air droppable with the soldier. As part of the POM process the Army has decided to include a Laser Designator Sensor on the Class I UAV.

The Class II Unmanned Aerial Vehicle (UAV) will be a vehicle-carried system that provides Line-of-Sight (LOS), Non-Line of Sight (NLOS) and Beyond Line of Sight (BLOS) capabilities, including enhanced dedicated imagery. The distinguishing capability of this UAV is target designation in day, night, and adverse weather. The Class II weighs 112 pounds dry and does not require an airfield. The Class II Unmanned Aerial Vehicle (UAV) is carried on the MGV and is capable of being lifted by two Soldiers, has a 16 km radius of action, and can remain aloft for two hours. Due to Fiscal budget constraints, the Class II effort was terminated at the beginning of FY07 and the requirement has been made objective.

The Class III Unmanned Aerial Vehicle (UAV) is a multifunction aerial system that has the range and endurance to support battalion level RSTA within the Brigade Combat Team (BCT) battle space. It provides the capabilities of the Class I and Class II, but at longer ranges and higher altitudes, in addition to communications relay, mine detection, Chemical, Biological, Radiological and Nuclear detection, and meteorological survey. The Class III vehicle has a payload of up to 215 pounds and can be lifted by two soldiers. Due to Fiscal budget constraints, the Class III effort was terminated at the beginning of FY07 and the requirement has been made objective.

The Class IV Unmanned Aerial Vehicle (UAV) has a range and endurance appropriate for the brigade mission. It supports the Brigade Combat Team (BCT) Commander with communications relay, long endurance persistent stare, and wide area surveillance over 75km radius. Unique missions include dedicated manned and unmanned teaming (MUM)

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with manned aviation; Emitter Mapping; Wide Band Communications Relay across 150-175 km; and standoff Chemical Biological Radiological, Nuclear, and Energy (CBRNE) detection with on-board processing. Additionally, it has the payloads to enhance the RSTA capability by cross-cueing multiple sensors. It operates at survivable altitudes at standoff range at day and night and during adverse weather. Like the Class III, the Class IV must be able to take-off and land without a dedicated air field. The Class IV vehicle weighs about 1800 pounds and has a setup time of 30 minutes.

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
UAV CLASS I - FY07. Obtained soldier feedback from lessons learned during experimentation and test with the 25th Infantry Division. Provided hardware to participate in Experiment 1.1. There were 4 prototype Class I systems used in Experiment 1.1. During Experiment 1.1, the Class I prototype successfully demonstrated transmission of reconnaissance and surveillance data with a Joint Tactical Radio System and successful transmission of reconnaissance and surveillance data to all of the participating elements of Experiment 1.1, to include Apache helicopters and FCS ground vehicles. Completed Class I Design Checkpoint Review/Interim Preliminary Design Review (PDR) in September 2007	19052		
UAV CLASS IV FY07. Updated Class IV Prime Item Development Specifications (PIDS) Requirements with Vehicle Integrator based on System PIDS Updates. Provided a platform simulation engineering release to the FCS SoSIL. Delivered Engineering Release of Build 1 Simulation into SoSIL. Accepted delivery of Army/Navy common airframes A1-A5. Completed Phase 1 of air vehicle assembly for the first 2 Air Vehicles at Moss Point, MS, less FCS-unique avionics/ payloads. Completed Ground Engine Run Tests for A1 and A2. Landing Gear Drop Test completed. Cooperative E3 Testing with the US Navy began. Vendor level component and subsystem delta testing for E3 and Temperature began, will conclude in FY08. Continued with initial build software development.	22761		
Total	41813		

<u>B. Other Program Funding Summary</u>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
0604660A FCS Manned Grd Vehicles & Common Grd Vehicle Components		592254	774257	785575	358641	214207	103230	Continuing	Continuing
0604661A FCS System of Systems Engr & Program Management		1497321	1413945	1874987	1916207	1290308	1027816	Continuing	Continuing
0604662A FCS Reconnaissance (UAV) Platforms		43388	34379	14296	9235	4556	1336	Continuing	Continuing
0604663A FCS Unmanned Ground Vehicles		90091	96918	64744	43601	26855	3580	Continuing	Continuing
0604664A FCS Unattended Ground Sensors		10929	12967	18968	16754				59618
0604665A FCS Network Hardware & Software		647649	539145	334085	365287	290790	169526	Continuing	Continuing
0604646A Non Line of Sight - Launch System	313981	253075	200099	40043	5957				813155
0604647A Non Line of Sight - Cannon	108689	136929	89841	71396	43222	28775			478852
0604666A FCS Spin Outs	27900	64385	64900	67021	51026	56287	14637	Continuing	Continuing
0603639A FCS MRM		44294	45866	71451	56296	106353	50757	Continuing	Continuing

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BUDGET ACTIVITY	PE NUMBER AND TITLE							PROJECT	
5 - System Development and Demonstration	0604645A - Armored Systems Modernization (ASM) - Eng Dev							F52	
WTCV G86100 FCS Core Program		80932	154583	148028	677820	2175327	5744649	Continuing	Continuing
WTCV G86200 FCS Spin Out Program		19987	176667	367962	550821	766274	944999	Continuing	Continuing
0604645 F52 UAV Recon & Sensors	41813							Continuing	Continuing
0604645 F53 UGV	104301							Continuing	Continuing
0604645 F54 UGS	10391							Continuing	Continuing
0604645 F55 SUSTAINMENT	104302							Continuing	Continuing
0604645 F57 MANNED GROUND VEHICLES	516217							Continuing	Continuing
0604645 F61 SoS Engineering and Program management	2150508							Continuing	Continuing

Comment:

C. Acquisition Strategy Fiscally constrained Budgets, coupled with the fiscal challenge to meet the Army's reset and modernization requirements, have caused the Army to implement FCS program adjustments. These adjustments maintain the Army's focus on FCS-equipped Brigade Combat Team development and minimize the efforts on operational requirements. The adjustments to the FCS Program acquisition strategy fall into the following categories:

1. Defer the following platforms from the FCS(BCT): ARV-A, ARV-RSTA, UAV Class II, UAV Class III
2. Refine the schedules for the development of the Core and Spin Out capabilities so that the Army can benefit from the savings realized with concurrent testing.
3. Increase the rate of fielding of FCS technologies to the current force.
4. Fully fund the Spin Out technology Insertion program and development and fielding of the Mid-Range Munitions (MRM) and Advanced Kinetic Energy (AKE) munitions.
5. Revise platform configurations to decrease the production cost of a single Core FCS BCT from \$6.2 billion to \$5.9 billion (FY03 Constant dollars) by deferring/deleting selected sensors and other associate hardware (such as the XM307 machine gun).

The following is a history of the LSI SDD Contract.

	Contract Award	Definitization Date
Original Contract Award	30 May 2003	10 Dec 2003
Modified for POM 06-11 Changes	6 Aug 2004	2 Mar 2005
Conversion to FAR Base Contract	23 Sep 2005	28 Mar 2006
Modification for POM 8-13 Adjustments	Feb 2007	May 2007

The R forms are based on estimated effects of the Army adjustment. Upon completion of negotiation of the contract modification, caused by this adjustment, reprogramming actions may be required to realign the funding buckets to the contract.

Termination Liability associated with this contract is included in PE 0604645 Project F61.

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IAW Section 214 of the FY2006 National Defense Authorization Act, this project was converted to a stand alone Program Element (0604662A Project FC3) commencing with the FY2008 President's Budget submission to Congress.

ARMY RDT&E COST ANALYSIS (R3)

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BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
5 - System Development and Demonstration			0604645A - Armored Systems Modernization (ASM) - Eng Dev							F52		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
CLASS I	OTA	THE BOEING CO., ST LOUIS, MO SEE REMARK 1	10114	19052	1Q						29166	
CLASS II	OTA	THE BOEING CO., ST LOUIS, MO SEE REMARK 4, 7	5953								5953	
CLASS III	OTA	THE BOEING CO., ST LOUIS, MO SEE REMARK 4, 5, 6, 7	16450								16450	
CLASS IV	OTA	THE BOEING CO., ST LOUIS, MO SEE REMARK 2	77904	22761	1Q						100665	
Subtotal:			110421	41813							152234	

Remarks: Remark 1: Subcontractor: Honeywell,- Albuquerque, New Mexico
 Remark 2: Subcontractor: Northrop Grumman Systems Corp.- San Diego, CA
 Remark 4: Subcontractor: Piasecki Aircraft Corporation - Essington, PA
 Remark 5: Subcontractor: Teledyne Brown Engineering - Huntsville, AL
 Remark 6: Subcontractor: AAI Corporation - Hunt Valley, MD
 Remark 7: Class II and Class III Phase 2 contracts terminated due to POM 08-13 decisions.

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Government GFX ASTAIMIDS, RSTA Sensor, Firescout	Direct	PM FCS (BCT) , St. Louis, MO	23995								23995	
Subtotal:			23995								23995	

Remarks: All support costs for this project are included in F61 SoS Engineering and Program Management project.

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award	FY 2008 Cost	FY 2008 Award	FY 2009 Cost	FY 2009 Award	Cost To Complete	Total Cost	Target Value of
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ARMY RDT&E COST ANALYSIS (R3)

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BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev							PROJECT F52		
	Type				Date		Date		Date		Contract	
Subtotal:												

Remarks: All Test and Evaluation costs for this project are included in F61 SoS Engineering and Program Management project.

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												
Project Total Cost:			134416	41813							176229	

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BUDGET ACTIVITY 5 - System Development and Demonstration		PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev						PROJECT F53	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
F53 FCS- UNMANNED GROUND VEHICLES (UGV)	104301								104301

A. Mission Description and Budget Item Justification: The Army's Future Combat System (Brigade Combat Team) (FCS (BCT)) is a joint system of systems consisting of a network and a combination of manned and unmanned systems that use an advanced network architecture to enable levels of joint connectivity, situational awareness and understanding, and synchronized operations previously unachievable. It is designed to interact with and enhance the Army's most valuable weapon - the Soldier. When fully operational, FCS will provide the Army and the joint force unprecedented capability to see the enemy, engage him on our terms, and defeat him on the 21st Century battlefield. It is adaptable to traditional warfare as well as complex, irregular warfare in various rural and urban terrains. FCS is the #1 priority acquisition program for the Army.

This FCS project includes contractor developmental and engineering efforts for requirement analysis, specification development, and detail design packages for integration of common and mission equipped Unmanned Ground Vehicles. Also included are subsystem prototypes, models, and/or simulations to support development, tests, and demonstrations. Unmanned platforms include: Armed Robotic Vehicles-Reconnaissance (ARV-RSTA) and ARV-Assault (ARV-A), Small Unmanned Ground Vehicle (SUGV), Multi-function Utility/Logistics Equipment-Transport (MULE-T), MULE-Countermine (CM), and ARV-Assault Light (ARV-A-L). In addition to the UGV platforms, this project includes the development of the hardware and software for the Autonomous Navigation System (ANS) required for operation of the UGVs and leader-follower capability for the Manned Ground Vehicles (MGV).

Small Unmanned Ground Vehicle (SUGV)

The Small Unmanned Ground Vehicle (SUGV) is a small, lightweight, manportable, DC powered UGV capable of conducting military operations in urban terrain tunnels, sewers, and caves. The SUGV enables the performance of manpower intensive or high-risk functions (i.e. urban Intelligence, Surveillance, and Reconnaissance (ISR) missions, chemical/Toxic Industrial Chemicals/Toxic Industrial Materials, reconnaissance, etc.) without exposing soldiers directly to the hazard. Weighing less than 30 pounds, it is capable of carrying up to six pounds of payload weight. The SUGV will have the following capabilities: tether payload, manipulator arm, CBRN capabilities and the potential for integrating future technologies for Sense Through the Wall and Mine/UXO/IED detection ability. The SUGV can operate up to six hours on a single charge.

Multifunctional Utility/Logistics and Equipment (MULE) Vehicle is a 2.5-ton Unmanned Ground Vehicle (UGV) that will support dismounted operations. It is comprised by the integration of four major components: Common Mobility platform, Autonomous Navigation System (ANS), Centralized Controller (CC) and three mission equipment packages/variants. The MULE platform's centerpiece is the common mobility platform providing superior mobility built around an articulated suspension system to negotiate obstacles and gaps that a dismounted squad might encounter. The MULE has three variants sharing the common mobility chassis: Transport, Countermine and the Armed Robotic Vehicle (ARV)-Assault-Light (ARV-A-L). The Transport MULE (MULE-T) will carry 1,900-2,400 pounds of equipment and rucksacks for dismounted infantry squads with the mobility needed to follow squads in complex terrain. The Countermine MULE (MULE-CM) will provide the capability to detect, mark and neutralize individual anti-tank mines by integrating a mine detection mission equipment package from the Ground Standoff Mine Detection System (GSTAMIDS) program to support force mobility. The ARV-Assault-Light (ARV-A-L) is a mobility platform with an integrated weapons and target acquisition package to support the dismounted infantry's efforts to locate and destroy enemy platforms and positions. The ARV-A-L includes the M240 machine gun, JAVELIN missile and medium range EOIR sensors to engage and destroy the enemy in dismounted operations. The MULE platforms are UH-60 transportable.

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Autonomous Navigation System(ANS) is the mission payload package that will be integrated on both the MULE and ARVs to provide robotic semiautonomous capability. ANS provides GPS/IPS core navigation, targeting support and timing. It also detects obstacles and provides alternate routes. The ANS primary system components are: the LADAR Imaging Perception Module (LIPM), the Imaging Perception Module (IPM), the Millimeter Wave Radar (MMWR), the Global Positioning System/Inertial Navigation System (GPS/INS) and the ANS Computer System (ACS). ANS provides for day and night capability in all weather and mobility control for on/off roads, cross country and complex terrain. MMWR provides tracking in rain, smoke or fog along with an early warning for approaching vehicles with high closing rates. ACS provides SoSCOE interface, path planning, video processing, hardware sensor processing object processing and speed and curvature commands. As part of the Army Budget Constraints contain in the FY08-13 POM decision, the leader follower MGV mission is being deferred and made an objective requirement.

Armed Robotic Vehicle (ARV)

The Armed Robotic Vehicle (ARV) has two variants: the Assault variant (ARV-A) and the Reconnaissance, Surveillance and Target Acquisition variant (ARV-RSTA). The two variants share a common chassis. The ARV-A and ARV-RSTA will have different mission payloads mounted on a common chassis capable of staying with MGVs. These two variants are being deferred and made an objective requirement as part of the Army Budget Constraints contain in the FY08-13 POM.

The ARV-A will be utilized to maneuver forward of the mounted and dismounted elements in the attack or within the defense. The Assault variant will support the mounted and dismounted forces in the assault providing Line-of-Sight (LOS) and overwatching fires with direct fire and anti-tank (AT) weapons to destroy enemy platforms and fortified positions; remotely occupies key terrain providing ISR/TA reconnaissance capability in MOUT and other battlespace; remotely deploy sensors; locate or by-pass threat obstacles; remotely assess battle damage, employ non-lethal munitions; remotely provide limited reconnaissance capability and acts as a communications relay.

The ARV-RSTA accompanies mounted and reconnaissance units and fills the role of an additional "scout", gathering information forward of the MGVs. The ARV-RSTA consists of a common chassis platform with payloads that provide video capability, digital communications/audio relay modules (plug in/out), and advanced sensors/mission modules. The ARV-RSTA variant will provide Reconnaissance, Surveillance and Target Acquisition for the FCS (BCT). The ARV-RSTA will provide reconnaissance capability in Urban Military Operations in Urban Terrain and other battlespace; deploy sensors, highlight targets, locate or by-pass threat obstacles in buildings, bunkers, tunnels, and other urban areas and act as a communications relay and perform battle damage assessment.

IAW Section 214 of the FY2006 National Defense Authorization Act, this project will be converted to a stand alone Program Element (0604663A Project FC4) commencing with the FY2008 President's Budget submission to Congress

Accomplishments/Planned Program:

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
SUGV FY07 - Began integration of head and neck activities, which will lead to a fully integrated head and neck assembly design prior to CDR in 1st qtr, FY10. The internal round 2 Pre-Prototypes were produced and used in the FCS Experiment 1.1 at White Sands. These experiments garnered valuable data to enhance the design. Internal Round 3 Pre-Prototype Development began and will continue through FY08 leading up to the SUGV CDR in 1st qtr FY10. Initial Temperature Testing completed June 2007 on Round 2 Pre-Prototypes. Endurance Testing completed on Round 2 Pre-Prototypes during July 2007. Drop Testing completed on Round 2 Pre-Prototypes during July 2007. Continued support of SUGV Simulation and testing at the SoSIL.	10858		
ANS FY07 - Procurement Control Document (PCD) to Configuration Item Development Specification (CIDS) transition completed June 2007. Continued Technology and Integration Risk Reduction Activities to enhance the maturation of the ANS design, and resolve	93443		

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<p>artifacts for the ANS PDR held on 15 Nov 07. Conducted Phase 1 Robotic Convoy Experiment (RCS) System Integration and Test of all hardware/software systems, Laser Image Perception Module (LIPM), Image Perception Module (IPM), ANS computer, Millimeter Wave (MMWR) RADAR, and GPS/INS on Stryker, Light Medium Tactical Vehicle (LMTV), and Family of Medium Tactical Vehicles (FMTV) at White Sands Missile range (WSMR). Initiated experiments and demonstrations of Robotic Convoy capabilities, to include: Teleoperation, Leader/Follower, Move-on-route, and Obstacle avoidance. Fabricated ANS Pre-Prototypes for the MULE EEU. Continued component fabrication and testing of the IPM for the ANS. Completing fabrication of the ANS Engineering Prototypes to support EEU, Robotic Vehicle Control Architecture (RVCA), Robotic Convoy (RCX) and General Dynamics Robotic Systems (GDRS) engineering test vehicle (Predator). ANS Simulation for Software (SW) Build 1 completed for Functional Qualification Test (FQT) and has been delivered to Software Integration Laboratory (SIL). Continued integration and test of ANS hardware on six surrogate vehicles to support ANS development. Provided Software Build 1 SIL Test support in August 2007. Supported integration of the ANS simulation on the MULE and MGW simulations. Conducted preparation, development, integration, and test for Engineering Phase (EP) 7 and 8 of Phase One ANS Software Development. Conducted preparation, development, integration, and test for EP 9 and start of 10 of Phase Two ANS Software Development. Completed ANS Build 1 software engineering release. ANS Simulation in SW Build 2 began.</p>		
Total		104301

<u>B. Other Program Funding Summary</u>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
0604660A FCS Manned Grd Vehicles & Common Grd Vehicle Components		592254	774257	785575	358641	214207	103230	Continuing	Continuing
60046661A FCS System of Systems Engr & Program Management		1497321	1413945	1874987	1916207	1290308	1027816	Continuing	Continuing
0604662A FCS Reconnaissance (UAV) Platforms		43388	34379	14296	9235	4556	1336	Continuing	Continuing
0604663A FCS Unmanned Ground Vehicles		90091	96919	64744	43601	26855	3580	Continuing	Continuing
6064664A FCS Unattended Ground Sensors		10929	12967	18968	16754				59618
6064665A FCS Network Hardware & Software		647649	539145	334085	365287	290790	169526	Continuing	Continuing
0604646A Non-Line of Sight- Launch System	313981	253075	200099	40043	5957				813155
0604647A Non-Line of Sight - Cannon	108689	136929	89841	71396	43222	28775			478852
0604666A FCS Spin Out	29700	64385	64900	67021	51026	56287	14637	Continuing	Continuing
0603639A FCS MRM		44294	45866	71451	56296	106353	50757	Continuing	Continuing
WTCV G86100 FCS Core Program		80932	154583	148028	677820	2175327	5744649	Continuing	Continuing
WTCV G86200 FCS Spin Out Program		19987	176667	367962	550821	766274	944999	Continuing	Continuing
0604645 F52 UAV Recon & Sensors	41813							Continuing	Continuing
0604645 F53 UGV	104301							Continuing	Continuing
0604645 F54 UGS	10391							Continuing	Continuing

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BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev					PROJECT F53	
0604645 F55 SUSTAINMENT	104302						Continuing	Continuing	
0604645 F57 MANNED GROUND VEHICLES	516217						Continuing	Continuing	
0604645 F61 SoS Engineering and Program Management	2150508						Continuing	Continuing	

Comment:

C. Acquisition Strategy Due to FCS requirements changing in the last 3 years, coupled with the challenge to meet all its reset and modernization requirements, have caused the Army to implement FCS program adjustments. These adjustments maintain the Army focus on FCS-equipped Brigade Combat Team development at reduced program risk. The adjustments to the FCS Program acquisition strategy fall into the following categories:

1. Defer the following platforms from the FCS(BCT): ARV-A, ARV-RSTA, UAV Class II, UAV Class III
2. Refine the schedules for the development of the Core and "Spin Out" capabilities so that the Army can benefit from the savings realized with concurrent testing.
3. Increase the rate of fielding of FCS technologies to the current force
4. Fully fund the Spin Out technology Insertion program and development and fielding of the Mid-Range Munitions (MRM) and Advanced Kinetic Energy (AKE) munitions
5. Revise platform configurations to decrease the production cost of a single Core FCS BCT from \$6.2 billion to \$5.9 billion (FY03 Const \$) by deferring/deleting selected sensors and other associate hardware (such as the XM307 machine gun).

The following is a history of the LSI SDD Contract.

	Contract Award	Definitization Date
Original Contract Award	30 May 2003	10 Dec 2003
Modified for POM 06-11 Changes	6 Aug 2004	2 Mar 2005
Conversion to FAR Base Contract	23 Sept 2005	28 Mar 2006
Modification for POM 8-13 Adjustments	Feb 2007	May 2007

IAW Section 214 of the FY2006 National Defense Authorization Act, this project will be converted to a stand alone Program Element (0604663A Project FC4) commencing with the FY2008 President's Budget submission to Congress.

ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
5 - System Development and Demonstration			0604645A - Armored Systems Modernization (ASM) - Eng Dev								F53	
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Armed Robotic Vehicle (ARV-A)	OTA/FAR	The Boeing Company St. Louis, MO see remark 2	4068								4068	
Small Unmanned Ground Vehicle (SUGV)	OTA/FAR	The Boeing Company St. Louis, MO see remark 1	22942	10858	1-3Q						33800	
MULE T	OTA/FAR	The Boeing Company St. Louis, MO see remark 3	17742								17742	
Autonomous Navigation System - Software	OTA/FAR	The Boeing Company St. Louis, MO see remark 4	63110	93443	1-3Q						156553	
MULE CM	OTA/FAR	The Boeing Company St. Louis, MO see remark 3	28465		1-3Q						28465	
ARV SEPM	OTA/FAR	The Boeing Company St. Louis, MO see remark 2	29790								29790	
ARV COMMON	OTA/FAR	The Boeing Company St. Louis, MO see remark 2	23508								23508	
MULE STE	OTA/FAR	The Boeing Company St. Louis, MO see remark 3										
MULE SEPM	OTA/FAR	The Boeing Company St. Louis, MO see remark 3	20245		1-3Q						20245	
Subtotal:			209870	104301							314171	

ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY 5 - System Development and Demonstration	PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev	PROJECT F53
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II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

Remarks: All Test and Evaluation costs for this project are included in F61 SoS Engineering and Program Management project.

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

Project Total Cost:	209870	104301									314171	
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

BUDGET ACTIVITY 5 - System Development and Demonstration		PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev						PROJECT F54	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
F54 UNATTENDED SENSORS	10391								10391

A. Mission Description and Budget Item Justification: The Army's Future Combat System (Brigade Combat Team) (FCS (BCT)) is a joint system of systems consisting of a network and a combination of manned and unmanned systems that use an advanced network architecture to enable levels of joint connectivity, situational awareness and understanding, and synchronized operations previously unachievable. It is designed to interact with and enhance the Army's most valuable weapon - the Soldier. When fully operational, FCS will provide the Army and the joint force unprecedented capability to see the enemy, engage him on our terms, and defeat him on the 21st Century battlefield. The Army's first modernization effort in nearly four decades; FCS is the embodiment of the modular force, a modular system designed for "full spectrum" operations. It will network existing systems, systems already under development and future systems to be developed to meet the requirements of the Army's Future Force. It is adaptable to traditional warfare as well as complex, irregular warfare in various rural and urban terrains. It can also be adapted to civil support, such as disaster relief. FCS is the #1 priority acquisition program for the Army.

U-UGS - The Urban-Unattended Ground Sensors (U-UGS), also known as Urban Military Operations in Urban Terrain Advanced Sensor system, will provide a low cost, network-enabled reporting system for SA and force protection in an urban setting, as well as residual protection for cleared areas of Urban Military Operations in Urban Terrain (MOUT) environments. The (U-UGS) system can support BCT operations by monitoring urban choke points such as rooms, halls attics, basements, sewers, culverts, tunnels, caves, and alleyways. They can be hand-employed by Soldiers or robotic vehicles either inside or outside buildings and structures. When a platoon or squad clears a building for example, U-UGS are left behind to perform surveillance that would otherwise require dedicated soldiers.

The U-UGS system provides a self-organizing wireless network that consists of three configuration items; personnel detect sensors, imaging sensors, and gateways.

1. Personnel Detect Sensors provide dual mode, passive infrared and RF microwave motion sensing for "trip-wire" detection of intruders.
2. Imaging Sensors provide electro-optical visual imaging with a near-infrared illuminator for operation in full darkness.
3. Gateways organize and manage the sensor network, and communicate sensor data to FCS C2 JTRS systems and to the local dismounts.

T-UGS-Tactical-UGS (t-ugs) includes Intelligence, Surveillance and Reconnaissance (ISR)-UGS and Chemical, Biological, Radiological and Nuclear (CBRN)-UGS. The UGS (T-UGS) are designed for remote tactical operations in open spaces, at road choke points, avenues of approach, etc, and are designed to be emplaced by hand or by remote deployment methods. T-UGS provides ISR and CBRN awareness to the FCS (BCT) of areas not covered by manned/unmanned ground/air vehicles. The common form factor enables simplified scalability and upgrade paths for future technology insertion, while the distributed sensing capability enhances mission flexibility and system versatility. The T-UGS system consists of five configuration items (nodes), each containing a unique set of sensing capabilities, and sharing a common hardware form factor.

1. The T-UGS ISR sensor node provides for vehicle and personnel detection capabilities via seismic, acoustic and magnetic sensors. Seismic sensors are the primary means of personnel detection. The principal means of vehicle detection and tracking are the acoustic bearing sensors. The ISR-UGS will be modular and composed of tailorable sensor groups using multiple ground-sensing technologies. Multiple sensors support precision location and simultaneous tracking of multiple targets.
2. When confirmed as a valid target of interest, Electro Optical/Infrared (EO/IR) sensor nodes will autonomously capture multiple images of the target.
3. The CBRN node provides for chemical, biological, radiological, and nuclear sensing and reporting capability.
4. The Hazard/Clear Lane Marker (H/CLM) nodes are deployed to mark hazardous keep-out zones, or to define cleared lanes through hazardous areas such as minefields.
5. The final component of the T-UGS system is the Long-Haul gateway node that provides radio communications and integration into the FCS network.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

BUDGET ACTIVITY 5 - System Development and Demonstration	PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev	PROJECT F54
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<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
UNATTENDED GROUND SENSORS (UGS) FY07 - Spin Out 1 Critical Design Review (CDR), conducted 2Q FY07, marked the design completion and initiated the fabrication and prototype build phase. Completed SO1 UGS design LUT Configuration. Completed SO1 UGS developmental testing LUT Configuration. Delivered fully qualified UGS systems to the (SoS) SIL in FY 2007. Integrated SoSCOE v. 1.5 and 1.8 into the UGS. (IV1) Tests include HALT, HAST, and Endurance; as well as the start of system integration testing. Integration & Verification (IV) testing completed in FY07 to be followed by full system Integrated Qualification Test (IQT). Delivered pre-qualification hardware to Boeing's C4ISR System Integration Lab (SIL) for integration testing with the C4ISR network elements. The delivery augmented other UGS Modeling & Simulation (M&S) efforts to conduct the Integration & Verification (IV) phase activities. Delivered C4SIL pre-qual units: 2 T-UGS and 2 U-UGS systems. Successfully captured UGS images and sensor data during Experiment 1.1. Transmitted this information across a network displaying results for situational awareness.	10391		
Total	10391		

<u>B. Other Program Funding Summary</u>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
0604660A FCS Manned Grd Vehicles & Common Grd Vehicle Components		592254	774257	785575	358641	214207	103230	Continuing	Continuing
0604661A FCS System of Systems Engr & Program Management		1497321	1413945	1874987	1916207	1290308	1027816	Continuing	Continuing
0604662A FCS Reconnaissance (UAV) Platforms		43388	34379	14296	9235	4556	1336	Continuing	Continuing
0604663A FCS Unmanned Ground Vehicles		90091	96919	64744	43601	26855	3580	Continuing	Continuing
0604664A FCS Unattended Ground Senesors		10929	12967	18968	16754				59618
0604665A FCS Network Hardware & Software		647649	539145	334085	365287	290790	169526	Continuing	Continuing
0604646A Non-Line of Sight - Launch System	313981	253075	200099	40043	5957				813155
0604647A Non-Line of Sight - Cannon	108689	136929	89841	71396	43222	28775			478852
0604666A FCS Spin Out	27900	64385	64900	67021	51026	56287	14637	Continuing	Continuing
0603639A FCS MRM		44294	45866	71451	56296	106353	50757	Continuing	Continuing
WTCV G86100 FCS Core Program		80932	154583	148028	677820	2175327	5744649	Continuing	Continuing
WTCV G86200 FCS Spin Out Program		19987	176667	367962	550281	766274	944999	Continuing	Continuing
0604645 F52 UAV Recon & Sensors	41813							Continuing	Continuing
0604645 F53 UGV	104301							Continuing	Continuing
0604645 F54 UGS	10391							Continuing	Continuing

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev					PROJECT F54	
0604645 F55 SUSTAINMENT	104302						Continuing	Continuing	
0604645 F57 MANNED GROUND VEHICLES	516207						Continuing	Continuing	
0604645 F61 SoS Engineering and Program Management	2150508						Continuing	Continuing	

Comment:

C. Acquisition Strategy Fiscally constrained Budgets, coupled with the fiscal challenge to meet the Army's reset and modernization requirements, have caused the Army to implement FCS program adjustments. These adjustments maintain the Army's focus on FCS-equipped Brigade Combat Team development and minimize the efforts on operational requirements. The adjustments to the FCS Program acquisition strategy fall into the following categories:

1. Defer the following platforms from the FCS(BCT): ARV-A, ARV-RSTA, UAV Class II, UAV Class III
2. Refine the schedules for the development of the Core and Spin Out capabilities so that the Army can benefit from the savings realized with concurrent testing.
3. Increase the rate of fielding of FCS technologies to the current force.
4. Fully fund the Spin Out technology Insertion program and development and fielding of the Mid-Range Munitions (MRM) and Advanced Kinetic Energy (AKE) munitions.
5. Revise platform configurations to decrease the production cost of a single Core FCS BCT from \$6.2 billion to \$5.9 billion (FY03 Constant dollars) by deferring/deleting selected sensors and other associate hardware (such as the XM307 machine gun).

The following is a history of the LSI SDD Contract.

	Contract Award	Definitization Date
Original Contract Award	30 May 2003	10 Dec 2003
Modified for POM 06-11 Changes	6 Aug 2004	2 Mar 2005
Conversion to FAR Base Contract	23 Sep 2005	28 Mar 2006
Modification for POM 8-13 Adjustments	Feb 2007	May 2007

The R forms are based on estimated effects of the Army adjustment. Upon completion of negotiation of the contract modification, caused by this adjustment, reprogramming actions may be required to realign the funding buckets to the contract.

Termination Liability associated with this contract is included in PE 0604645 Project F61.

IAW Section 214 of the FY2006 National Defense Authorization Act, this project was converted to a stand alone Program Element (0604662A Project FC3) commencing with the FY2008 President's Budget submission to Congress.

ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
5 - System Development and Demonstration			0604645A - Armored Systems Modernization (ASM) - Eng Dev							F54		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Unattended Ground Sensors (UGS)	OTA/FAR	The Boeing Company - St. Louis, MO - See Remark 1	52257	10391	1-3Q						62648	
Subtotal:			52257	10391							62648	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												
Remarks: All Test and Evaluation costs for this project are included in F61 SoS Engineering and Program Management project.												
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												
Project Total Cost:			52257	10391							62648	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

BUDGET ACTIVITY 5 - System Development and Demonstration		PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev						PROJECT F55	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
F55 SUSTAINMENT	104302								104302

A. Mission Description and Budget Item Justification: The Army's Future Combat System (Brigade Combat Team) (FCS (BCT)) is a joint system of systems consisting of a network and a combination of manned and unmanned systems that use an advanced network architecture to enable levels of joint connectivity, situational awareness and understanding, and synchronized operations previously unachievable. It is designed to interact with and enhance the Army's most valuable weapon - the Soldier. When fully operational, FCS will provide the Army and the joint force unprecedented capability to see the enemy, engage him on our terms, and defeat him on the 21st Century battlefield. The Army's first modernization effort in nearly four decades; FCS is the embodiment of the modular force, a modular system designed for "full spectrum" operations. It will network existing systems, systems already under development and future systems to be developed to meet the requirements of the Army's Future Force. It is adaptable to traditional warfare as well as complex, irregular warfare in various rural and urban terrains. It can also be adapted to civil support, such as disaster relief. FCS is the #1 priority acquisition program for the Army.

This project contains funding for Training and Logistics Development for the Future Combat Systems (FCS) Brigade Combat Team (BCT). The logistics effort includes the development of the management, products, and services required to design, develop, assemble, integrate, and test the supportability processes and supporting automated applications within the FCS System of Systems (SoS). Validation of maneuver sustainment, Production Based Logistics (PBL), and other applicable logistics support concepts during SoS Test and SoSIL simulations. Assurance that sensor collection of data for logistics modeling verification and validation efforts, as well as operational PBL. It also funds analysis to aid in life cycle product support decision making. Commonality of hardware and software within the FCS program is a priority action needed to reduce the Lifecycle costs and logistical footprint of the FCS. Logistics Management Product Integration - Provides integration of supportability products into the SoS elements, including diagnostics and prognostics functions and conducts logistics technical reviews at the system, vehicle, and component levels.

Logistics Fielding includes development of the process for deploying vehicles to home base locations to include facilities analysis.

Networked Logistics Systems is integrated in the FCS software to achieve the logistics goals of reducing the logistics footprint, enhancing deployability, increasing operational availability, and reducing total ownership costs. These critical program goals are included in the two logistics Key Performance Parameters (KPP), KPP 4 (Transportability/Deployability) and KPP 5 (Sustainability/Reliability). Inherent to meeting these KPPs is the integration of logistics in the command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) network primarily through the Platform-Soldier Mission Readiness System (PSMRS) and the Logistics Decision Support System (LDSS). These systems provide unprecedented depth and accuracy of logistics information and decision tools to the commanders and logisticians by enabling the distribution system to deliver the right stuff to the right place at the right time, thus reducing O&S costs and improving operational availability. The supportability of the FCS (BCT) is further enabled by the reduction of demand designed into the System of Systems (SoS). Increased Reliability Availability Maintainability Test (RAM-T) goals and implementing a Performance Based Logistics (PBL) support concept through extensive up front systems engineering efforts will result in increased Operational Availability and significant decreases in both parts and maintenance personnel while generating increased combat power. The time required to execute a repair is significantly decreased through implementation of Pit-Stop Engineering designs for maintenance, easing both crew and maintainer burdens. Training includes contractor analysis to support training for the SoS. This effort includes the design and development, engineering, integration, embedded training, and testing of unique training devices, training systems engineering, training products, training support packages, and training integration. Training also provides for the management, plans, products, verification and validation, and services required to ensure design, development, fabrication, integration, and test of a FCS (BCT) training program and FCS (BCT) training system capable of meeting Operational Requirements Document (ORD) objectives. This mission assures that the training system is designed as an integral part of the overall SoS design to meet Increment 1 requirements and provides

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - System Development and Demonstration

0604645A - Armored Systems Modernization (ASM) - Eng Dev

F55

for future increment upgrades. Identify, assess, and mitigate training risks as part of the SDD risk reduction effort and coordinate these risk reduction efforts with the SoS Engineering technical risk manager. Support the distributed network and platform development efforts required to implement embedded and stand alone training designs within (FoS) products necessary to ensure these designs meet ORD requirements. Includes training product design and interfaces as required to address U.S. Army training implementation beyond the SoS and/or FoS levels for consistency with the existing and planned U.S. Army training infrastructure. Apply a common systematic approach to identify, define, and assess training system technologies and training environments for potential application to FCS training requirements. Embedded Training assures the FCS (BCT) network facilitates the Soldier's ability to train anywhere, any time. Technology has matured to a level that supports these requirements. Embedded Training (ET) will be developed as an integral part of the FCS (BCT) manned platform and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) architectures.

The Embedded Live-Virtual-Constructive (LVC) Multi-more Training is the cornerstone of the networked Embedded Training (ET) and will satisfy the Key Performance Parameter (KPP#6) which states the FCS Family of Systems (FoS) must have an embedded individual and collective training capability that supports live, virtual, and constructive training environments. ET must be designed-in at the start of the program to ensure it is developed in conjunction with the other FCS (BCT) System of Systems (SoS) components. Embedding the training capabilities as an inherent part of the operational system mitigates negative training inherent with attempting to replicate operational performance, since an embedded solution stimulates and uses the operational capabilities as an organic part of the solution.

Accomplishments/Planned Program:

FY 2007

FY 2008

FY 2009

TRAINING SYSTEMS FY07. 32 One Team Partners continue to develop Embedded Training capability, software and products, including Training (Instructional) Support Packages (TSPs), Interactive Multi-media Instruction (IMI), Training Aids and Devices, Simulations and Simulators (TADSSs) for Experiment 1.1 & Spin Out #1. Continue integration of embedded training software and products in the Training Systems Integration Lab (SIL). Deliver second increment of Training Common Components for FCS. Continue to develop Embedded Training capability and products. Continue development of Training Support Plans (1,500+ tasks). Deliver the third increment of the (SORL) and the (SITL). Develop Leader and Battle Staff tasks for the FCS equipped units (500+ tasks). Identify training requirements and develop training support products in preparation for Integrated Mission Test 1 (IMT-1). Test Training products and support for Experiment 1.1 in Training SIL and during experiment. Provide training inputs and support to FCS Systems PDRs & CDRs (14+1+1 systems). Continue Key Performance Parameter (KPP) #6 (Training) trace, development, and execution. Continue integration of Training software with Warfighter Machine Interface (WMI). Update and Deliver: Training Management Plan, Training Data Products Report, Training Support Packages, Training Facilities Survey Report.

14791

SUSTAINMENT FY07 - Update the Material Fielding Plan, the PBL implementation plan, the Supportability Strategy, and the M&S models. Conduct Test Readiness Reviews for PS-MRS and LDSS Build 1 software. Deliver the first phase of logistics products (Logistics Planning software) that were developed during the FCS Program's engineering iteration 1, to the C4ISR System Integration Lab (SIL) in February. Log Data Management Service (LDMS) contract, awarded Dec 2006. LDMS will be integrated with the Army's Logistics Enterprise and supports a network-enabled, performance-based logistics solution that will reduce the logistics footprint, increase operational availability and significantly lower life-cycle costs for FCS (BCT). Continue PDR quality maturation of platform Sustainment and Transportation specifications. PIDS to CSCI Interfaces Documented. Interoperability (I/O) Kits PIDS developed and SFR completed. Complete LRR IMT1 detailed test procedures. Logistics Decision Support System EII Development continued. IETM Specification and Requirements Development continued. SO 1 Supportability Strategy Final Draft Released. SO1 PBL Implementation Plan approved. FCS Materiel Fielding Plan updated for EII RAP. Platform Soldier-Mission Readiness System EII Development continued. Conduct ILS and KPP Assessments for platform PDRs and CDRs. Continue logistics analysis of Complementary Programs supporting the FCS (BCT).

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February 2008

BUDGET ACTIVITY 5 - System Development and Demonstration	PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev	PROJECT F55
GFX FY07 - PEO STRI SME SUPPORT - This includes the US Government Subject Matter Experts who oversee the integration of over 14.6 million lines of GFX training software code and the associated requirement into the total SoS training planned software code.	1353	
Total	104302	

<u>B. Other Program Funding Summary</u>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
Other Program Funding for this project is the same as for projects F52, F53 and F54.									

Comment:

C. Acquisition Strategy Fiscally constrained Budgets, coupled with the fiscal challenge to meet the Army's reset and modernization requirements, have caused the Army to implement FCS program adjustments. These adjustments maintain the Army's focus on FCS-equipped Brigade Combat Team development and minimize the efforts on operational requirements. The adjustments to the FCS Program acquisition strategy fall into the following categories:

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3. Increase the rate of fielding of FCS technologies to the current force.
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The following is a history of the LSI SDD Contract.

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Original Contract Award	30 May 2003	10 Dec 2003
Modified for POM 06-11 Changes	6 Aug 2004	2 Mar 2005
Conversion to FAR Base Contract	23 Sep 2005	28 Mar 2006
Modification for POM 8-13 Adjustments	Feb 2007	May 2007

The R forms are based on estimated effects of the Army adjustment. Upon completion of negotiation of the contract modification, caused by this adjustment, reprogramming actions may be required to realign the funding buckets to the contract.

Termination Liability associated with this contract is included in PE 0604645 Project F61.

IAW Section 214 of the FY2006 National Defense Authorization Act, this project was converted to a stand alone Program Element (0604662A Project FC3) commencing with

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

BUDGET ACTIVITY

5 - System Development and Demonstration

PE NUMBER AND TITLE

0604645A - Armored Systems Modernization (ASM) - Eng Dev

PROJECT

F55

the FY2008 President's Budget submission to Congress.

ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
5 - System Development and Demonstration			0604645A - Armored Systems Modernization (ASM) - Eng Dev							F55		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Training Specifications & Training Products	OTA	The Boeing Company - St. Louis, MO - see remarks 1-3	170145	74014	1-3Q						244159	
Logistics Systems Management	OTA	The Boeing Company - St. Louis, MO - see remarks 4-6	120895	28935	1-3Q						149830	
Subtotal:			291040	102949							393989	

Remarks: Remark 1: Subcontractor: Computer Science Corp. Federal Sector Defense Group, Fsls Church, VA
 Remark 2: Subcontractor: Dynamics Research Corp. Systems Division, Andover, MD
 Remark 3: Subcontractor: Northrop Grumman, Info Tech, Def Enterprise Solutions Div, Mclean, VA
 Remark 4: Subcontractor: Northrop Grumman-Mission Systems, Carson CA
 Remark 5: Subcontractor: Honeywell-Defense & Electronic Systems, Albuquerque, NM
 Remark 6: Subcontractor: IBM. Bethesda, MD

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
GFX - PEO STRI SME Training Support	Direct	PM FCS (BCT), St. Louis, MO	1301	1353	1Q							
Subtotal:			1301	1353								

Remarks: All support costs for this project are included in F61 SoS Engineering and Program Management project.

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

Remarks: All Test and Evaluation costs for this project are included in F61 SoS Engineering and Program Management project.

ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
5 - System Development and Demonstration			0604645A - Armored Systems Modernization (ASM) - Eng Dev								F55	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												
Project Total Cost:			292341	104302							393989	

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BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev					PROJECT F57	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
F57 MANNED GROUND VEHICLES	516217								516217

A. Mission Description and Budget Item Justification: The Army's Future Combat Systems, Brigade Combat Team (FCS BCT) is a joint system of systems (SoS) consisting of an advanced network integrated within of a series of manned/unmanned systems that via electronic architecture enables unprecedented joint connectivity, situational awareness/understanding, and synchronized operations. It will enhance the Army's most formidable weapon - the Warfighter. FCS provides unprecedented capability to see first, understand first and decisively defeat the enemy on the 21st Century battlefield. This FCS BCT SoS Force will be adaptable - from traditional to irregular warfare - conducted in various complex environments (rural/urban). FCS is the Army's Modernization Strategy and as such, is the #1 acquisition program for the Army.

This project supports development for a variety of Manned Ground Vehicles (MGVs)(exclusive of Non-Line of Sight - Cannon (NLOS-C) specific mission equipment) and includes technology maturation, systems engineering, subsystem/variant unique mission equipment (i.e. armament/fire control), integration/assembly, and prototype build. Also includes following common MGCV subsystem development (to include NLOS-C subsystems): armor, suspension, structures, defensive armament system, signature management, NBC, vetronics, power and energy (includes hybrid electric drive), auxiliary systems and hit avoidance system. Project specified MGVs include: Infantry Carrier Vehicle (ICV), Mounted Combat System (MCS), Non-Line of Sight Mortar (NLOS-M), Command and Control Vehicle (C2V), Recon and Surveillance Vehicle (RSV), FCS Recovery and Maintenance Vehicle (FMRV), and Medical Vehicle (MV).

The ICV provides mobility for 11 personnel (two man crew and nine-man infantry squad) on the battlefield. Located within the infantry platoons and companies within the CA battalions. Delivers the dismounted force to the close battle and supports the squad by providing self defense and supporting fires. The ICV carries the majority of equipment freeing the individual Soldier from being burdened with equipment.

The MV provides advanced trauma life support within 1 hour to critically injured Soldiers. The MV serves as the primary medical system within the BCT and will have two mission modules (Evacuation and Treatment). The time-sensitive nature of treating critically injured soldiers requires an immediately responsive force health protection system with an expedient field evacuation system. The MV-Evacuation (MV-E) vehicle allows trauma specialists, maneuvering with combat forces, to be closer to the casualty's point-of-injury and is used for casualty evacuation. The MV-Treatment (MV-T) vehicle provide Advanced Trauma Management (ATM)/Advanced Trauma Life Support (ATLS) treatments and procedures forward for more rapid casualty interventions and clearance of the battlespace. Both MVs will be using installed networked telemedicine interfaces.

The FRMV is the recovery and maintenance system for employment in the FCS BCT. The Brigade Support Battalion (BSB) maintainers will be organized into Combat Repair Teams (CRT) supported by 10 FRMVs. These CRTs will perform in-depth BDAR and unscheduled field-level maintenance requirements beyond the capabilities of the crew to include lift, welding, cutting, and heating of materials.

The NLOS-M is the short-to-mid-range indirect fire support component within the FCS BCT. It will be organic to and provide networked, responsive and sustained indirect fire support to the Combined Arms Maneuver Battalion in the FCS BCT. It fires a suite of 120mm munitions that include special purpose capabilities to provide a variety of fires on demand including precision guided munitions such as precision guided mortar munitions (PGMM). NLOS-M will provide close support and destructive fires for tactical standoff engagement during both offensive and defensive operations in concert with line-of-sight, beyond-line-of-sight, other NLOS, external and joint capabilities in combat scenarios

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spanning the spectrum of ground combat and threats.

The RSV features a suite of advanced sensors to detect, locate, track, classify and automatically identify targets from increased standoff ranges under all climatic conditions, day or night. Included in this suite are a mast-mounted, long-range electro-optic infrared sensor, an emitter mapping sensor for radio frequency intercept and direction finding, remote chemical detection, and a multifunction RF sensor. The RSV carries 6 Soldiers (2 common crew and 4 scouts).

The C2V provides the tools for commanders and staffs to command and control various elements of the FCS BCT. Via mission workstations and a common warfighter-machine interface, C2Vs contain the interfaces that allow commanders and their staffs to perform tasks such as fusing friendly, enemy, civilian, weather and terrain situations and distributing this information via a common operating picture. The C2V carries 6 Soldiers (2 common crew and 4 mission crew).

The MCS provides offensive maneuver to close with and destroy enemy forces. The MCS is capable of conducting mounted operations, mounted operations supported by dismounted infantry, and supporting dismounted infantry operations in all environments. The MCS delivers precision fires at a rapid rate to destroy multiple targets at standoff ranges quickly and complements the fires of other systems in the FCS BCT. It is highly mobile and maneuvers out of contact to positions of advantage. It is capable of providing direct support to the dismounted infantry in an assault, defeating bunkers, and breaching walls during the tactical assault. The MCS can engage targets from Beyond Line of Sight (BLOS). The BLOS capability allows the FBCT the ability to stand-off from the enemy's lethality envelope, allowing the MCS to be more lethal, at greater ranges.

The MGV Common Subsystems project includes developmental and engineering effort for the detailed design and integration of common components and sub-systems into a common chassis configuration applicable to the entire fleet of MGV combat vehicles. Major subsystems included in the Common Chassis design include a Hit Avoidance System (HAS), Propulsion (Hybrid Electric Drive with a High Power Density Diesel Engine), active dampening suspension with band track, Common Crew Station (CCS), Close Combat Armament System (CCAS), hull structure and armor, chassis auxiliary, Vehicle Electronics and Power Distribution (Vetronics). The focus of this effort is on a producible, reliable, sustainable, maintainable, and affordable common chassis design.

GOVERNMENT MGV GFX

Government GFX XM307 Prototypes- A light weight portable Advanced Crew Served Weapon utilizing 25mm air burst ammunition. XM307 has a full solution fire control system that includes a laser range finder and a day/night sight. It is highly portable within small soldier units and provides overwhelming lethality compared to existing systems. General Dynamics Ordnance and Tactical Systems is developing ammo. Kaman Dayron is developing the fuze and Raytheon is developing the full solution fire control.

FY06 - Develop requirements/specifications and ICDs for the XM307 weapon to be used on UGV or MGV variants. As a result of the Army decision in support of the FY08-13 POM, XM307 is no longer funded in the FCS Program.

Government GFX mobility Shaker Table rent to test the Mounted Combat System Mobility Firing fixture on the TARDEC Shaker Table.

Accomplishments/Planned Program:

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
CONTRACTOR INFANTRY COMBAT VEHICLE (ICV)- FY07 - A competitive subcontract was awarded to Moog for a common Multimedia Slip Ring (MMSR) that will be used on RSV, ICV, and MCS. MK44 Linkless Ammo Feed System competitive subcontract was awarded to Meggitt Defense Systems Inc. ensuring system design is developed for PDR for both ICV and RSV. Performed specialty engineering analysis (reliability, maintainability, logistics, Human Factors Engineering (HFE), and system survivability). Initiated weekly MK44 Turret engineering design coordination meetings between ICV and RSV IPTs, ensuring that BAE designs with the maximum	10503		

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
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commonality between the ICV and RSV turrets, and ensuring accessibility for maintenance in design. Completed Requirement Baseline Review 2 (RBR2) which initiated ICV Software Build development activities.		
CONTRACTOR MOUNTED COMBAT SYSTEM (MCS) FY07 - Performed partial preliminary design and test of ammunition sympathetic detonation mitigation system. Completed preliminary design ammunition data link for Beyond Line Of Site (BLOS) ammunition. Completed preliminary design and test of 120mm light weight gun system (XM360) with 37 rounds fired in FY07. Performed preliminary design of 120mm Ammunition Handling System (AHS). Performed preliminary design of armament system and mission module (turret structure and hardware/software integration). Fabricated three cannons for testing. Completed contracts for major sub-systems for primary weapon assembly and ammunition handling unit. Completed long lead procurement for initial assembly of the firing fixture. Began long lead procurements for the firing test rig. Delivered the lightweight 120mm Primary Weapon Assembly (XM360). Began fabrication of MCS firing fixture: Turret integration of XM360 and ammunition handling unit. Reduced Technology Risks with continued development of: Ammunition data link for use with BLOS munitions. Dynamic muzzle reference sensor. Advanced Fire Inhibit System (AFIS). High Voltage Electric Gun Turret Drive (EGTD). Continued Development of IV2 subsystem integration capability. Developed initial fire control software for the firing fixture testing.	63621	
CONTRACTOR NLOS-M - FY07 - NLOS Mortar firing platform delivered to Camp Ripley, MN. NLOS-M firing platform fired first shot down range in March 2007 with a total of 609 shots fired. Performed multi-variable testing for in-bore round retention subsystem component maturation. Procured and fabricated hardware for propellant storage and handling component maturation. Continued component maturation and integration on round retention, ammunition handling, and multi-media slip ring. Reliability investment program continued. Preliminary design efforts continued for PDR in 1st qtr FY09.	18206	
CONTRACTOR COMMAND & CONTROL VEHICLE (C2V) FY07 - Conducted communications lab integration testing in preparation for field testing. Initiated C2V installed performance component maturation testing at Electronic Proving Ground (EPG), Ft. Huachuca, AZ. Continued user jury evaluation process for mission work stations. Matured preliminary design for C2V mission work station and integrated platform. Conducted display hardware R&D to address physical packaging and environmental challenges. Continued to update subsystem critical item development specifications and interface control documents.	15788	
CONTRACTOR RECONNAISSANCE & SURVEILLANCE VEHICLE (RSV) - FY07 - Performed Preliminary design activities for RSV mission work station and integrated platform in preparation for the RSV PDR in the 2nd qtr of FY09. Bought hardware material to build RSV test rig, aluminum to build structure and material to build the wood mock up (for prototyping and evaluation in Muskegon MI), including seats and material for displays and controls. Began RSV SIL build-up. Continued performance and roof-top sensor deconfliction studies. Updated subsystem critical item specifications (CID) and interface control documents (ICD). Continued human factors engineering analysis and testing. Conducted weekly MK44 Turret engineering design coordination meetings between RSV and ICV IPTs and ensured that BAE designs with the maximum commonality between the RSV and ICV turrets, and ensured all RSV requirements for turret integration into the RSV platform were met.	16785	
CONTRACTOR FIELD RECOVERY & MAINTENANCE VEHICLE (FRMV) - FY07 - Published MGTV integrated towing design team analysis and incorporated results into MGTV design. Provided FRMV required functions of the centralized controller (CC) for CC CIDS. Developed the size, weight, and operating parameters for the crane system. Analyzed alternate materials for crane subsystems and alternate synthetic ropes for the hoist winch cable application. Developed an integrated systems model used to mature the FRMV design approach to tow all manned ground vehicles in operational environments. Initiated recovery winch procurement process by developing and releasing a Request for Proposal (RFP). Initiated procurement process for crane actuator and crane hoist winch by developing draft RFPs. Completed Requirement Baseline Review 2 (RBR2) which initiated FRMV Software Build development activities.	14532	

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BUDGET ACTIVITY 5 - System Development and Demonstration	PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev			PROJECT F57
CONTRACTOR MEDICAL VEHICLE (MV-E/T) - FY07 - Initiated development of the MV-T Treatment Table & facilitating pit stop engineering improvements and MANPRINT analysis. Initiated preliminary design and integration activities. Initiated down-select plan and assessment of competing MV-T Shelter candidates ensuring that the User gets the best shelter that meets the requirements. Conducted MV-E Litter Lift System Pit-Stop Engineering and MANPRINT analysis resulting in improvements made in the brassboard ensuring the best lightweight and most reliable design. Completed Requirement Baseline Review 2 (RBR2) which initiated MV Software Build development activities.	7343			
CONTRACTOR MGCV COMMON COMPONENTS FY07 - Completed MGCV In Process Review (IPR). Developed the Preliminary Design Configuration (PDC) concept and supporting analysis, ensuring the concept was sufficiently mature to enter preliminary design phase. Completed APS Full-Spectrum SFR (for short and long range against RTN's base contract), SR-APS SRR , SR-APS SFR, CF-HAS SRR and CF-HAS SFR. Continued full spectrum hit avoidance suite development/integration. Began SRCM Design Verification Test phase 1. Completed 100% power output on advanced diesel engine. Performed Transportability analysis to ensure multiple vehicles (MGVs) could be transported on a C-17. Conducted MGCV weight reduction initiatives, ensuring weight allocations were achieved. MGCV Common Software Build 1 entered Formal Qualification Testing in 3rd qtr. Implemented MGCV modeling standards. Updated variant S/W architecture products. Performed specialty engineering analysis (reliability, maintainability, logistics, human factors engineering, system survivability, etc.). Size, weight, power, cooling, reliability, and cost allocation estimates updated. Matured Interface Control Documents (ICDs). Continued development of system/subsystem design documents. Continued solid-based model design-3D. Continued models/drawing/equipment layout diagrams efforts. Specified, designed, procured and began testing of Early Prototype Configuration (EPC) and Production Prototype Configuration (PPC) threshold common subsystems. Finalized System integration labs development plans and initiated testing. Completed common system and subsystem EPC/PPC best technical approach (BTA) with appropriate trade studies.	355478			
Government GFX FY07 - Down-selected an electronic air bursting fuse approach between the assessed options of mechanical and electrical. The XM307 effort was terminated in Jan 07 due to Army funding constraints. Government Subject Matter Experts continued to design and help integrate the Active Protection System (APS) into the MGCV series platforms.	13961			
Total	516217			

<u>B. Other Program Funding Summary</u>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
Other Program Funding for this project is the same as for projects F52, F53 and F54.									

Comment:

C. Acquisition Strategy Fiscally constrained Budgets, coupled with the fiscal challenge to meet the Army's reset and modernization requirements, have caused the Army to implement FCS program adjustments. These adjustments maintain the Army's focus on FCS-equipped Brigade Combat Team development and minimize the efforts on operational requirements. The adjustments to the FCS Program acquisition strategy fall into the following categories:
 1. Defer the following platforms from the FCS(BCT): ARV-A, ARV-RSTA, UAV Class II, UAV Class III

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2. Refine the schedules for the development of the Core and Spin Out capabilities so that the Army can benefit from the savings realized with concurrent testing.
3. Increase the rate of fielding of FCS technologies to the current force.
4. Fully fund the Spin Out technology Insertion program and development and fielding of the Mid-Range Munitions (MRM) and Advanced Kinetic Energy (AKE) munitions.
5. Revise platform configurations to decrease the production cost of a single Core FCS BCT from \$6.2 billion to \$5.9 billion (FY03 Constant dollars) by deferring/deleting selected sensors and other associate hardware (such as the XM307 machine gun).

The following is a history of the LSI SDD Contract.

	Contract Award	Definitization Date
Original Contract Award	30 May 2003	10 Dec 2003
Modified for POM 06-11 Changes	6 Aug 2004	2 Mar 2005
Conversion to FAR Base Contract	23 Sep 2005	28 Mar 2006
Modification for POM 8-13 Adjustments	Feb 2007	May 2007

The R forms are based on estimated effects of the Army adjustment. Upon completion of negotiation of the contract modification, caused by this adjustment, reprogramming actions may be required to realign the funding buckets to the contract.

Termination Liability associated with this contract is included in PE 0604645 Project F61.

IAW Section 214 of the FY2006 National Defense Authorization Act, this project was converted to a stand alone Program Element (0604662A Project FC3) commencing with the FY2008 President's Budget submission to Congress.

ARMY RDT&E COST ANALYSIS (R3)

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BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev							PROJECT F57		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
INFANTRY CARRIER VEHICLE (ICV)	OTA/FAR	THE BOEING COMPANY - ST. LOUIS, MO see remark 2	45626	10503	1-3Q						56129	
MOUNTED COMBAT SYSTEMS (MCS)	OTA/FAR	THE BOEING COMPANY - ST. LOUIS, MO see remark 1	165650	63621	1-3Q						229271	
NON-LINE OF SIGHT MORTAR (NLOS-M)	OTA/FAR	THE BOEING COMPANY - ST. LOUIS, MO see remark 3	37782	18206	1-3Q						55988	
Contractor Common Component Vehicle Subs	OTA/FAR	THE BOEING COMPANY - ST. LOUIS, MO see remark 1,2,3	567970	15788	1-3Q						583758	
COMMAND & CONTROL VEHICLE (C2V)	OTA/FAR	THE BOEING COMPANY - ST. LOUIS, MO see remark 1	58920	16785	1-3Q						75705	
RECONNAISSANCE & SURVEILLANCE VEHICLE (RSV)	OTA/FAR	THE BOEING COMPANY - ST. LOUIS, MO see remark 1	58876	14532	1-3Q						73408	
Medical Vehicle (MV)	OTA/FAR	THE BOEING COMPANY - ST. LOUIS, MO see remark 2	9864	7343	1-3Q						17207	
FCS RECOVERY & MAINT VEH (FRMV)	OTA/FAR	THE BOEING COMPANY - ST. LOUIS, MO see remark 2	14522	355478	1-3Q						370000	

ARMY RDT&E COST ANALYSIS (R3)

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BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev							PROJECT F57	
GFX XM307 Prototypes	Direct	General Dynamics Arm. & Tech. Products, Charlotte, NC	30689	13961	1-3Q						44650	
Subtotal:			989899	516217							1506116	

Remarks: Remark 1: Subcontractor: General Dynamics Land Systems - Sterling Heights, MI
 Remark 2: Subcontractor: BAE - Ground Systems Division - Santa Clara, CA
 Remark 3: Subcontractor: BAE - Armament Systems Division - Minneapolis, MN

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

Remarks: All Test and Evaluation costs for this project are included in F61 SoS Engineering and Program Management project.

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

Project Total Cost:			989899	516217							1506116	
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BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604645A - Armored Systems Modernization (ASM) - Eng Dev					PROJECT F61	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
F61 S o S Engineering and Program Management	2150508								2150508

A. Mission Description and Budget Item Justification: The Army's Future Combat System (Brigade Combat Team) (FCS (BCT)) is a joint system of systems consisting of a network and a combination of manned and unmanned systems that use an advanced network architecture to enable levels of joint connectivity, situational awareness and understanding, and synchronized operations previously unachievable. It is designed to interact with and enhance the Army's most valuable weapon - the Soldier. When fully operational, FCS will provide the Army and the joint force unprecedented capability to see the enemy, engage him on our terms, and defeat him on the 21st Century battlefield. The Army's first modernization effort in nearly four decades; FCS is the embodiment of the modular force, a modular system designed for "full spectrum" operations. It will network existing systems, systems already under development and future systems to be developed to meet the requirements of the Army's Future Force. It is adaptable to traditional warfare as well as complex, irregular warfare in various rural and urban terrains. It can also be adapted to civil support, such as disaster relief. FCS is the #1 priority acquisition program for the Army.

This project includes System Development and Demonstration (SDD) contractor efforts associated with System of Systems (SoS) engineering, analysis and integration, Network Software and Hardware, SoS Test and evaluation and program management. In addition to these contractor efforts, this PE/project also includes all Government efforts (test, program management, analysis, contracting, Financial management and support to to other DOD agencies for joint programs and collaboration efforts with FCS.

The following summarizes what is included within the SOS Engineering and Program Management Project:

SoS Engineering - Conduct SoS reviews, top level trade studies, and architectural design of the SoS including requirements decomposition, requirements flow down, development of specifications, interface definitions, configuration management oversight, specialty engineering, and the analysis and verification of integrated force effectiveness.

Program management - The development of processes, tools, meetings, Earned Value Management (EVM), risk management, software management, etc used to manage the total program (to include subcontractors/Partners) to achieve the SoS program goals within the available dollars and schedules.

NETWORK SOFTWARE - Includes development (design, code, and test) of network software required to implement the network and common software for the network or nodes on the network. Includes the SoS Common Operating Environment (SOSCOE) suite of network and security services, together with distributed network applications software for; battle command, data fusion, logistics decision support and mission readiness, as well as training applications.

COMMON NETWORK HARDWARE - Includes design, development and prototype procurement of common hardware required for implementation of the data network. This includes sensors, communications hardware and computer processing capabilities.

Because of the criticality of the Network (Hardware and Software) the Army has created a new PE (concurrent with the FY08 President's budget submission to Congress) to provide Congress more visibility for all Network hardware and software development efforts.

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SoS Test and Evaluation - Includes contractor and Government test and analysis to ensure SoS and FoS performance is effectively and efficiently achieved to specific criteria. The results of the SoS test is validation/verification that the resulting specifications meet the ORD and O&O requirements

Government Support Costs - Includes funding for government personnel to include labor, travel, training, supplies, and other support costs (support contractors, Automated Data Processing (ADP), communications, supplies, and equipment). It includes support efforts for other services for Joint Programs, Multinational Project Arrangements, and collaborative efforts. Includes the procurement of Government Furnished Equipment/Items/Data (GFX) for the LSI. GFX is used when procurement through the government is less expensive than through the LSI.

Accomplishments/Planned Program:

FY 2007

FY 2008

FY 2009

GOVERNMENT - SYSTEM ENGINEERING & PROGRAM MANAGEMENT (SEPM) FY07 - Participated and ensured the government's best interest/values were considered in the following: SoS reviews, trade studies, architectural management, requirements decomposition, requirements flow down, development of specifications, interface definitions, configuration management oversight, specialty engineering, analysis and verification of integrated force effectiveness, software management, risk management, modeling and simulation management, performance assurance management, integration & verification management, technology management, experimentation, and FCS Spin Out development. PM provided integrated program management (i.e. planning, directing, tools and controlling functions), for all development activities, program control, procurement and contracts management, operations management, Congressional title 10 oversight, cost analysis and management, budget development and justification, earned value management, integrated master schedule development and management, complementary program management, and operations management.

195511

GOVERNMENT - SYSTEM TEST & EVALUATION (STE) FY07 - Completed planned MGVT, UAS, UGS, and UGV test events. MGVT testing included component nuclear survivability tests, NLOS-C firing test rig missions at YPG, and NLOS-M firing missions. Antenna placement tests were performed supporting C2V and RSV engineering efforts. These MGVT tests were performed at ATEC test centers with the exception of the NLOS-M firings. Unattended Ground Sensor testing was conducted at WSMR. UAS completed rotor hub tests and E3 tests leveraging the Navy's Fire Scout program. UGV completed Phase 1 Robotic Convoy testing with the Autonomous Navigation System. Range support for Experiment 2.1 provided by ATEC included data collection, use of range instrumentation and range safety operations. AMRDEC provided SME support for Class 1 and IV airworthiness certification. Funded connectivity between 12 SIL sites and ATEC ranges (DREN). Ammunition for future NLOS-C firing tests were also procured during FY07. Munitions include 120 M829A3 Cartridges, 120mm M830A1 cartridges, M549 rounds, and APS threat munitions. Funded development of the Common Control Nodes at WSMR and APG.TEST GFX - Funded APS Short Range Interceptor testing at RTTC. Procured 500 ea 30 mm Programmable Air Burst Munitions. Fabricated/ assembled 5 inert M831A1 and 5 M865 rounds. Fabricated 126 each inert 120mm cartridges. Conducted Fire Suppression testing of NLOS-C Increment 0. YPG NLOS-C Firing Platform Testing Threats - \$404K to SAAB Barracuda of Sweden for High Fidelity Decoys for the BMP2; Camouflaged netting threat vehicles; \$450K; Purchased 5 additional 3 GHz SIGINT/DF systems \$1.4M; Purchased 50 field ready injection Jammer devices and 4 control signal transmitters \$520K; purchased 5 GPS Jammer simulators - \$1M; One Safe Simulation \$300K; IMASE Upgrade Threat Blue Sensor - \$500K. UGV Robotic Convoy Testing at WSMR K. ATEC provided 25 MY core SME support and surge support to the LSI for Experiment 2.1.

182814

GOVERNMENT - MODELING & SIMULATION (M&S) FY07 - Completed delivery of 14 FCS platform simulations. Funds provided enhancement of ATEC, RDECOM, and TRADOC M&S capabilities essential to implement the FCS M&S strategy. This strategy dependent on linking FCS based M&S requirements with existing Army M&S capabilities with a focus on minimum "built from scratch"

20908

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<p>program M&S and maximum reusable integration of Army M&S capabilities. PM FCS (BCT) worked with these 3 Commands to create persistent, leave behind capabilities for the Army in the area of SoS M&S. Developed more interoperable M&S tools and processes that will increase the overall capabilities of M&S. Improved capabilities will reduce the overall costs to the LSI and Army in integration and lifecycle applicability and will reduce cycle time from requirements to integration with FCS simulation environments, particularly in Integration Phase 1 (IP1) and beyond. Application developed reference implementations that move M&S from cold war capabilities to those of Network-centric M&S. The Cross Command Collaborative Effort (3CE) will provide a larger library of tools available for consideration, incorporation, and breakdown of the funding based on integrated 3CE planning, M&S technical program management, and integration with FCS. M&S persistent network nodes that link all 3CE commands together and to the SoSIL network. M&S requirements, architecture, and gap analysis for 3CE and integration with the same from FCS LSI. M&S capability identification and development of emerging technologies. FCS IV&V support will continue throughout the program. IV&V Strategy and Master Plan. Multi Cell & Dismounted Command and Control (M&DC2). M&DC2 is being recommended by TRADOC for use by the Army and for a replacement for the MC2 Device at UAMBL (their current BC surrogate). M&DC2 needs to convert from OTB to OOS as its principal battle environment.</p>		
<p>GOVERNMENT GFX - TRAINING Government GFX FY07 - Provided Government Subject Matter Experts (SMEs) to oversee development and integration of training software. Build 1 Drop 2 of Training Common Components was delivered to the LSI in May 07 and first installed at the FCS Battle Command (BC) Software Integration & Test (SWIT) facility, Mesa, AZ in Sep 07. This was the first integration of the TCCs and FCS BC software.</p>	234701	
<p>CONTRACTOR SEPM - CONTRACTOR PROGRAM MANAGEMENT FY07 - Developed processes, models, tools, and management structure to integrate all subcontractor partners into one team to meet cost, schedules, and technical performance requirements in the contract. This included program overview, demonstration, Earned Value Management, briefings, demos, reports, meetings to support Program, risk management, subcontract management, small and minority business integration, data management, operation management, contract management, Contractor Data Requirements List (CDRL) management, procurement, acquisition management, System Development and Demonstration (SDD), Affordability/Cost As Independent Variable (CAIV)/Life Cycle Management, development of program baseline, and integrated master schedule development. Accomplishments for FY07 SEPM plans included an upgrade to the Single Integrated Model V4.0, SoSADD release, SoS Operational Views update, ARCH Single Integrated Model V3.y, and Architectural Development Plan (ADP) update. Completed events are as follows: Engineering Iteration 1 Readiness Anchor Point (EIIRAP), Engineering Iteration 2 Definition Anchor Point (EI2DAP). Experiment 1.1 soldier exercise report released April 2007. Continue to execute Experiment 2.0/Joint Expeditionary Force Exercise (JEFX) 08, Integration Brigade Combat Team Software Spin Out 1 Build 1 (BCT SW SO 1 B1) released.</p>	278848	
<p>CONTRACTOR SYSTEM REQUIREMENTS & INTEGRATION FY07 - Conducted architectural design, requirements decomposition and flow down, development of specifications, interface definitions, configuration management oversight, specialty engineering, and the analysis and verification of integrated force effectiveness. This included completing the baseline system and software architectures, completing initial Interface Control Documents (ICDs) for internal and external interfaces, completing the baseline Prime Item Development Specifications (PIDS)-(1200 requirements). The Integrated concepts and requirements refinement for operational Systems engineering included; conducting FD/FA, developed and design the Design Reference Mission Profiles to insure FCS equipment meets Army requirements, conducted Force Trade assessment, O & O Refinement, and Operational Views for Architecture. Participated in Experiment 1.1. Systems integrator developed/planned and is executing Integration and Verification (IV) 1, including architecture development and is defining interfaces for systems entering preliminary design. Continued support of Experiment 1.1. Systems integrator modified vehicle surrogates to integrate the JTRS cluster 1/Cluster 5 and WIN-T radios, FBCB2, AFATDS, DCGS-A. Developed</p>	638874	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
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experiment detailed test procedures. Assembled Test Consoles for Battle Command Suite Test and Integration and integration of MGV, UGV, UAV electronic compartment Mock-ups, Initial Test of Laboratory Test equipment software, Initiating the Network system Communication test event, Developed IV1 simulation requirements documentation, Developed IV1 simulation Test procedures, Integrating and testing of Ground and Air Sensor Simulations from "One Team Partners". Integrated SoSCOE into an integrated C4ISR software suite.		
CONTRACTOR TRAINING PRODUCTS FY07 - 32 One Team Partners continued to develop Embedded Training capability, software and products, including Training (Instructional) Support Packages (TSPs), Interactive Multi-media Instruction (IMI), Training Aids and Devices, Integration. Continued integration of embedded training software and products in the Training Systems Integration Lab (SIL). Test Training products and support for Experiment 1.1 in Training SIL and during experiment. Provided training inputs and support to FCS Systems PDRs.	542831	
Contractor FY07 Test -Completed 3 Phases of Exp 1.1 - Phase I Lab experiments completed. - Phase II Field test of the Five Major Network and Program Risks (QOS of the GMR Radios, Network Communications, Distributed (cross platforms/sensors) Fusion Management, Interoperability (FCS - ABCS and FCS - USMC), Information Assurance (PKI/CDG/IDS); - Phase III Soldier operations (Soldier Orientation and Training, Soldier Prep/Rehearsals, Live Runs). The Following vehicles/systems were exercised; HMMWV (as surrogate platforms for MGV vehicles; IMS Demonstrated the ability to join network and provide COP updates; NLOS-LS Demonstrated simulated Missile flyout and COP interactions; T-UGS Tracked soft targets, simulated acoustic targets, and multiple live threat vehicles; U-UGS Tracked soft targets in buildings at soldier command; UAV was flown on multiple missions and insured video designation of live threats; SUGV joined the federation and was able to send video to the COP; Apache demonstrated the ability to join the federation and exchange digital data with ground control; All systems interfaced with the BC, L1F, GMR, SOSCOE, DAGR, SINGARS, EPLRS, FBCB2.; Interfaced with WSMR and associated LSI and ATEC Labs; SO 1 Activities: - Planned early integration test events of Spin Out 1 capabilities in current force vehicles. Spin Out 1 Planning, Preparation and Infrastructure Setup. Developed Army Battle Command System test architecture for Spin Out 1 SoS Technical Field Test. Developed hardware and test personnel resource matrix. Completed Mid-year (MPC) and final planning conferences (FPC). Reconfigured Mobile Node from Exp 1.1 to SO 1 Configuration. Delivered Experiment 1.1 final report. IMT1 Activities: - Developed Operational Threads to exercise Net Centric test methodology. IMT1 AODD Capability - Assessment Objectives. Initiated Ft Bliss into the IMT1 test effort. Documented Procedures for IMT 1.	56021	
Total	2150508	

<u>B. Other Program Funding Summary</u>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
Other Program Funding for this project is the same as for projects F52, F53 and F54.									

Comment:

C. Acquisition Strategy Fiscally constrained Budgets, coupled with the fiscal challenge to meet the Army_s reset and modernization requirements, have caused the Army to implement FCS program adjustments. These adjustments maintain the Army_s focus on FCS-equipped Brigade Combat Team development and minimize the efforts on

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operational requirements. The adjustments to the FCS Program acquisition strategy fall into the following categories:

1. Defer the following platforms from the FCS(BCT): ARV-A, ARV-RSTA, UAV Class II, UAV Class III
2. Refine the schedules for the development of the Core and Spin Out capabilities so that the Army can benefit from the savings realized with concurrent testing.
3. Increase the rate of fielding of FCS technologies to the current force.
4. Fully fund the Spin Out technology Insertion program and development and fielding of the Mid-Range Munitions (MRM) and Advanced Kinetic Energy (AKE) munitions.
5. Revise platform configurations to decrease the production cost of a single Core FCS BCT from \$6.2 billion to \$5.9 billion (FY03 Constant dollars) by deferring/deleting selected sensors and other associate hardware (such as the XM307 machine gun).

The following is a history of the LSI SDD Contract.

	Contract Award	Definitization Date
Original Contract Award	30 May 2003	10 Dec 2003
Modified for POM 06-11 Changes	6 Aug 2004	2 Mar 2005
Conversion to FAR Base Contract	23 Sep 2005	28 Mar 2006
Modification for POM 8-13 Adjustments	Feb 2007	May 2007

The R forms are based on estimated effects of the Army adjustment. Upon completion of negotiation of the contract modification, caused by this adjustment, reprogramming actions may be required to realign the funding buckets to the contract.

Termination Liability associated with this contract is included in PE 0604645 Project F61.

IAW Section 214 of the FY2006 National Defense Authorization Act, this project was converted to a stand alone Program Element (0604662A Project FC3) commencing with the FY2008 President's Budget submission to Congress.

ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
5 - System Development and Demonstration			0604645A - Armored Systems Modernization (ASM) - Eng Dev							F61		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
CONTRACTOR- PROG MGT	OTA/FAR	The Boeing Company - ST. LOUIS, MO see remark 8	624841	265793	1-3Q						890634	
CONTRACT FEE	OTA/FAR	The Boeing Company - ST. LOUIS, MO	600279		1-3Q						600279	
CONTRACTOR NETWORK SOFTWARE	OTA/FAR	The Boeing Company - ST. LOUIS, MO see remarks 1,4,5,6,7,11,12,13,14	730620	399545	1-3Q						1130165	
CONTRACTOR NETWORK HARDWARE	OTA/FAR	The Boeing Company - ST. LOUIS, MO see remarks 2,3,9,10	274022	438250	1-3Q						712272	
CONTRACTOR SYSTEM REQUIREMENTS AND INTEGRATION	OTA/FAR	The Boeing Company - ST. LOUIS, MO remark 8	927340	500993	1-3Q						1428333	
Subtotal:			3157102	1604581							4761683	

- Remarks: 1: Subcontractor: Honeywell, Albuquerque, NM. (Platform Soldier mission readiness systems - Software)
 2: Subcontractor: BAE Systems, Wayne NJ (Air Ground Communications Integration)
 3: Subcontractor: General Dynamics Advanced Information Systems, Bloomington MN (Integrated Computer Systems)
 4: Subcontractor: Northrop Grumman - Mission Systems, Carson, CA, (Logistics Decision support Systems - Software)
 5: Subcontractor: Raytheon, Fort Wayne, IN, (Battle Command & Mission Execution - Software)
 6: Subcontractor: Overwatch/Austin Info Systems, Austin, TX, (Situational Understanding - Software)
 7: Subcontractor: General Dynamics C4 Systems, Scottsdale, AZ, (Sensor data arrangement & planning & preparation services - Software)
 8. Subcontractor: SAIC, San Diego,CA
 9. Subcontractor: Raytheon Network Centric Systems, Plano,TX (Ground Sensor Integration)
 10. Subcontractor: Northrop Grumman Electronic Systems CMS - Belcamp,MD (Air Sensor Integration)
 11. Subcontractor: LM Integrated Systems & Solutions - San Diego,CA (Level 1 Fusion - Software)
 12. Subcontractor: Northrop Grumman Network Management Systems - Carson,CA (Network Management System- Software)
 13. Subcontractor: Boeing Mesa - Mesa,AZ (Warfighter Machine Interface - Software)
 14. Subcontractor: International Business Machines - Bethesda,MD (Logistics Management System- Software)

II. Support Costs	Contract	Performing Activity &	Total	FY 2007	FY 2007	FY 2008	FY 2008	FY 2009	FY 2009	Cost To	Total	Target
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ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
5 - System Development and Demonstration			0604645A - Armored Systems Modernization (ASM) - Eng Dev								F61	
	Method & Type	Location	PYs Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Complete	Cost	Value of Contract
GOVERNMENT SYS ENG PROGRAM MGT	DIRECT	PM FCS (BCT) - ST. Louis, MO	221289	122959	1-4Q						344248	
GOVERNMENT OTHER	DIRECT	PM FCS (BCT) - ST. Louis, MO	114492	148526	1-3Q						263018	
SPIN OUT	DIRECT	PM FCS(BCT) - ST. Louis, MO	7400	27900	1-3Q						35300	
Subtotal:			343181	299385							642566	

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
CONTRACTOR - SoS Test	OTA/FAR	The Boeing Company - ST. LOUIS, MO.	59924	36597	1-3Q						96521	
GOVERNMENT - STE	DIRECT	PM FCS-BCT - ST. Louis, MO , see remarks 1-6	345691	196796	1-3Q						542487	
GOVERNMENT MODELING & SIMULATION	DIRECT	PM FCS-BCT - ST. Louis, MO	32355	13149	1-3Q						45504	
Subtotal:			437970	246542							684512	

Remarks: Remark 1:Subcontractor, Whitman, Requardt & Assoc, Baltimore, MD;
 2: John C. Grimberg Co., Rockville, MD
 3: ADT Corp, Baltimore, MD
 4. Netversant Co., Baltimore, MD
 5. 3D Research, Huntsville, AL
 6. Jacobs/Sverdrup, Aberdeen, MD

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

ARMY RDT&E COST ANALYSIS (R3)

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BUDGET ACTIVITY

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Remarks: .

Project Total Cost:

3938253

2150508

6088761