ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE
5 - System Development and Demonstration	**0604660A - FCS Manned Grd Vehicles & Common Grd Vehicle**

COST (In Thousands)		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
FC1	FCS MANNED GRD VEHICLES & COMMON GRD VEHICLE	635846	782664	368557		1787067

A. Mission Description and Budget Item Justification: This program supports development of Manned Ground Vehicles (MGVs) (exclusive of the Non-Line of Sight-Cannon (NLOS-C) specific mission equipment). The following common MGV subsystem developments are also included, (NLOS-C common subsystems): armor, suspension, structures, defensive armament system, signature management, Nuclear, Biological, and Chemical, vetronics, power and energy (includes hybrid electric drive), auxiliary systems and hit avoidance system. Also included in this project is mission specific equipment for the following platforms: Infantry Combat Vehicle (ICV), Mounted Combat System (MCS), Non-Line of Sight Mortar (NLOS-M), Command and Control Vehicle (C2V), Reconnaissance and Surveillance Vehicle (RSV), Field Recovery and Maintenance Vehicle (FRMV), and the Medical Vehicle (MV).

The ICV is a highly lethal, survivable, transportable, networked combat vehicle designed around the 9-man infantry squad. The ICV provides mobility for 11 personnel (2 man crew and 9-man infantry squad) on the battlefield, and protects the squad through self-defense and supporting fires. The ICV delivers the dismounted force to the close battle with an unprecedented situational awareness/situational understanding (SA/SU) and enroute mission planning due to leap-ahead technologies. The ICV is equipped with a 30mm auto cannon and a coax 7.62 machine gun to support infantry Soldiers. The 30mm programmable air burst round has the capability to destroy the dismounted enemy in the open, in trenches, crouched down behind a wall and inside buildings. The remotely operated turret maximizes soldier protection to improve crew survivability from a direct attack.

The RSV features a suite of advanced sensors (which are developed under PE 0604665A) 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 Mounted Combat System (MCS) provides offensive maneuver to close with and destroy enemy forces. The Mounted Combat System 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 capable of providing direct support to the dismounted infantry in an assault, defeating bunkers, and breeching walls during the tactical assault. The Mounted Combat System can engage targets from Beyond Line of Sight (BLOS), which allows the FBCT the ability to stand-off from the enemy's lethality envelope, allowing the Mounted Combat System to be more lethal, at greater ranges

The NLOS-M is the short-to-mid-range indirect fire support component within the FCS BCT. It will provide networked, responsive and sustained indirect fire support to the combined arms maneuver battalion in the FCS BCT. It fires 120mm munitions that include special purpose capabilities to provide a variety of fires on demand including precision guided munitions. NLOS-M will provide close support and destructive fires for tactical standoff engagement during offensive and defensive operations in concert with line-of-sight, beyond-line-of-sight, and external and joint capabilities in combat scenarios spanning the spectrum of ground combat and threats.

The MV is a highly mobile, survivable, networked medical vehicle designed around the combat medics and physicians. The MV quickly and safely evacuates wounded soldiers from the battlefield and 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 versions (MV-Evacuation (MV-E) and MV-Treatment (MV-T)). The MV-E allows trauma specialists, maneuvering with combat forces, to be closer to the casualty's point-of-injury and is used for medical evacuation. The MV-T enhances the ability to provide Advanced Trauma Management (ATM)/Advanced Trauma Life Support (ATLS) treatments and procedures forward for more rapid casualty interventions and clearance of the battlespace.

The FRMV is a highly survivable, mobile, networked combat recovery and maintenance vehicle designed around combat repair mechanics. The FRMV enables recovery and maintenance operations to keep pace with other combat platforms within the FCS BCT. The Brigade Support Battalion (BSB) maintainers will be organized into Combat Repair Teams (CRT) supported by FRMVs. These CRTs will perform in-depth Battlefield Damage Assessment and Repair (BDAR) and unscheduled field-level maintenance requirements including lift, welding, cutting, and heating of materials.

MGV Common subsystems include developmental and engineering efforts 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 are; 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 auxauxiliary, Vehicle Electronics (Vetronics) and Power Distribution.

The FCS MGV Core Program of Record is terminated in FY 2010. Costs within this program reflect anticipated completion of MGV and support of SoS PDRs and associated activities through the end of FY09. Stop Work contractual direction will be initiated after the Defense Acquisition Executive provides formal direction. Contractual Termination will occur upon an enacted FY 2010 DoD budget and is currently planned for the beginning of FY10. Restart of new Combat Vehicle Program will be captured in PE 0605625A, Project FC8. The accomplishments, funding, and schedule reflected in this justification are based on preliminary analysis of the new direction and reduced program budget. Upon further resolution and detailed planning, adjustments may occur which could potentially change planned accomplishments, funding requirements, and program schedule.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE
5 - System Development and Demonstration	**0604660A - FCS Manned Grd Vehicles & Common Grd Vehicle**

B. Program Change Summary	FY 2008	FY 2009	FY 2010
Previous President's Budget (FY 2009)	592254	774257	785575
Current BES/President's Budget (FY 2010)	635846	782664	368557
Total Adjustments	43592	8407	-417018
Congressional Program Reductions		-2593	
Congressional Recissions			
Congressional Increases		11000	
Reprogrammings	59963		
SBIR/STTR Transfer	-16571		
Adjustments to Budget Years	200		-417018

Change Summary Explanation: Funding: FY10 adjustments reflects: Termination of MGV engineering, prototypes and test activities.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - System Development and Demonstration	**0604660A - FCS Manned Grd Vehicles & Common Grd Vehicle**	**FC1**

COST (In Thousands)		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
FC1	FCS MANNED GRD VEHICLES & COMMON GRD VEHICLE	635846	782664	368557		1787067

A. Mission Description and Budget Item Justification: Please see Exhibit R-2.

Accomplishments/Planned Program:	FY 2008	FY 2009	FY 2010
CONTRACTOR INFANTRY COMBAT VEHICLE (ICV) FY08 - Engineering & Program Management - Continued ICV preliminary design activities in the areas of integrated vehicle, turret, and mission equipment in preparation for the 2nd qtr FY09 ICV Preliminary Design Review (PDR). Continued multimedia slip ring (MMSR) component maturation plan, and conducted ICV MMSR Critical Design Review (CDR). Conducted Gun Turret Drive System (GTDS), 30mm ammunition handling system (AHS), and M240 remote operating kit (ROK) system functional reviews (SFR), preliminary design reviews (PDR) and critical design reviews (CDR).	16156		
CONTRACTOR INFANTRY COMBAT VEHICLE (ICV) FY09 - Engineering & Program Management - Conducted ICV PDR in 2nd qtr FY09 in preparation for FCS SoS PDR in 3rd qtr FY09. Refine the ICV preliminary design of the integrated vehicle, turret, and mission equipment. Conduct ICV turret design work to include the turret structure, slip ring, ammunition handling system, armament, and fire control subsystems. Conduct ICV mission equipment design work to include design of the mission module structure, infantry squad compartment, squad situational awareness, equipment stowage, ramp, and infantryman interfaces.		35367	
CONTRACTOR INFANTRY COMBAT VEHICLE (ICV) FY08 - Prototypes - Initiated multimedia slip ring prototype brassboard development activities. Awarded the M240 machine gun remote operating kit (ROK)to Advanced Integrated Systems, Santa Barbara, CA. Awarded the 30mm Ammunition Handling System (AHS) to Meggitt Inc, Irvine CA. Awarded the MK44 gun system subcontract to Alliant Techsystems Inc. ATK Gun Systems, Mesa AZ. Initiated GTDS, 30mm AHS, and M240 ROK prototype brassboard development activities.	9582		
CONTRACTOR INFANTRY COMBAT VEHICLE (ICV)- FY09 - Prototypes - Accept delivery of MMSR, GTDS, M240 ROK, and 30 mm AHS prototype hardware brassboards, and integrate these subsystems into the ICV turret test stand and system integration lab (SIL) activities. Begin ICV prototype assembly and fabrication activities for the ICV mission equipment and turret .		6179	
CONTRACTOR INFANTRY COMBAT VEHICLE (ICV) FY09 - Test - Fabricate the turret firing test stand in the SIL and subsequently conduct initial turret dry fire test at contractor test site.		235	
CONTRACTOR INFANTRY COMBAT VEHICLE (ICV) FY08 - Software - Continued ICV Software Build 2 development activities and conducted the Software Build 2 Life Cycle Objective (LCO) review. ICV Build 2 software provides common fire control for MK44 and coax guns, weapon and Line of Sight (LOS) control, ramp and mission equipment control, and support of multiple ICV variant types (RS/PL/WS/CC) as well as integration of common chassis capabilities for vehicle propulsion, power distribution and control, suspension, environment control, crew station interface, and hit avoidance.	2839		
CONTRACTOR INFANTRY COMBAT VEHICLE (ICV) FY09 - Software - Continued ICV Software Build 2 and conducted the		4717	

Software Build 2 Life Cycle Objective in 1st qtr FY09. Initiate Software Build 3 development activities while conducting Build 3 LCO. Modeling and Simulation: Integrate Build 3 into modeling, simulation and integration (MS&I) activities. ICV Build 3 software provides complete subsystem fault management,recovery and reporting,and support for Embedded Training (Live, Virtual, Constructive Training Capability) as well as integration of common chassis capabilities for hit avoidance enhancements, and close combat armament system.			
CONTRACTOR MOUNTED COMBAT SYSTEM (MCS) FY08 - Engineering & Program Management - Continued preliminary design activities and prepared artifacts for Preliminary Design Review (PDR). Matured and allocated the MCS requirements and functional baselines into draft. Allocated baseline to support subsystem preliminary designs. Conducted focused design iterations to mature the design and achieve balance between requirements, cost, and weight. Developed trade studies and conducted discussions with Army to facilitate the convergence between requirements and the preliminary design.	24644		
CONTRACTOR MOUNTED COMBAT SYSTEM (MCS) FY09 - Engineering & Program Management - Complete the design of the Firing Test Rig (FTR) chassis. FTR is a test asset, which will mature the technology of key MCS fire control technologies. Conducted Preliminary Design Review (PDR) in 2nd qtr FY09 and enter critical design development phase. PDR will confirm alignment between the MCS requirements, functional, allocated, and emerging product baselines and ensure the preliminary design meets the Army's MCS requirements. Supporting this review will be consistency between requirement, architectures, performance analyses and interfaces into the design. PDR review will ensure that identified technical risks have acceptable mitigation plans in place to proceed into detailed design.		32072	
CONTRACTOR MOUNTED COMBAT SYSTEM (MCS) FY08 - Prototypes - Ordered long-lead materials to include Aluminum, Electric Gun Turret Drives (EGTD), crew workstations, Weapon Control Units, and Dynamic Muzzle Reference Sensors (DMRS) for MCS prototypes P21 through P27. P21 is first MCS prototype. MGV prototypes are now numbered to reduce confusion. The MCS prototypes will be numbered (P21-P27).	37250		
CONTRACTOR MOUNTED COMBAT SYSTEM (MCS) FY09 - Prototypes - Receive Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) sensor and Integrated Computer System (ICS) emulators. Receive MCS P21 Electric Gun Turret Drives (EGTD), Load Locks, and Weapon Control Unit (WCU). Order long lead Common Sub-systems to include Core Vetronics, Suspension, Propulsion, and Environmental Control System (ECS). Began turret and chassis integration and assembly the of the first MCS Prototype, (P21). MGV prototypes are now numbered (P21-P27).		23196	
CONTRACTOR MOUNTED COMBAT SYSTEM (MCS) FY08 - Test - Delivered XM360 Primary Weapon Assembly (PWA), Ammunition Handling System (AHS), and Fire Control sub-systems and integrated them into MCS Firing Platform. This is a test asset and not included in MCS 7 prototypes. Started 5-month dynamic testing of the Firing Platform on Tank-Automotive Research and Development Center's (TARDEC) Turret Motion Based Simulator (TMBS). This testing matured the design, demonstrated system integration in a relevant environment, and reduced design time and risk. Demonstrated Technology Readiness Level (TRL) 6 of Ammunition Data Link (ADL) for use with Mid-Range Munitions (MRM), Dynamic Muzzle Reference Sensor (DMRS), Advanced Fire Inhibit System (AFIS), high voltage Electric Gun Turret Drive (EGTD), and Ammunition Handling System (AHS) as a result of Firing Fixture Testing. Fired over 750 rounds in support of XM360 Safety Test 1 and 2 at Aberdeen Proving Grounds (APG).	976		
CONTRACTOR MOUNTED COMBAT SYSTEM (MCS) FY09 - Test - Complete 5 month dynamic testing of Firing Platform on TARDEC's Turret Motion Based Simulator (TMBS). Shoot over 200 Line-of Sight (LOS) rounds during 3-month live fire testing of Firing Platform at Aberdeen Proving Grounds. Order materials and begin FTR chassis fabrication Fire 500 rounds in XM360 Safety Tests #4 and #5 at Aberdeen Proving Grounds and obtain XM360 Interim Safety Release.		870	

CONTRACTOR MOUNTED COMBAT SYSTEM (MCS) - FY08 - Software - Build 2 developments: Completed Build 2 Requirement Baseline Review (RBR) Life Cycle Objective (LCO) Review. Modeling and Simulation: Build 2 FSE available from MS&I. System Integration Lab: SW/HW Integration (Phase 1 Software Emulator Drop, Phase 2 FSE Build 3 available from MS&I). MCS Build 2 software provides MCS fire control (Line of Sight (LOS)) engagements including primary weapon control, ballistics computation, ammunition handling, and firing as well as integration of common chassis capabilities for vehicle propulsion, power distribution and control, suspension, environment control, crew station interface, and hit avoidance.	2765		
CONTRACTOR MOUNTED COMBAT SYSTEM (MCS) - FY09 - Software - Build 2 continues and completes Build 2 Life Cycle Architecture Review. Build 3 begins and complete Build 3 Requirement Baseline Review. Modeling and Simulation: Build 3 FSE available from MS&I.		3679	
CONTRACTOR NLOS-M - FY08 - Engineering & Program Management - Completed Modeling & Simulation Build 2 IV2. Mortar Tube & Breech Increment 1 configuration available for mortar firing platform tests. Thermally optimized Increment 1 Mortar Tube and Breech Design established for procurement based upon completed FY08 Phase II Tests. Continued preliminary design activities for 2nd qtr FY09 PDR. Incremental Design Review (IDR) 3. Draft PDR Artifact submissions on track for Sept'08 in support of FY09 PDR.	18558		
CONTRACTOR NLOS-M - FY09 - Engineering & Program Management - Begin detailed design of the Ammunition Handling (AHS), Gun Mount, Gun Pointing, Structures and Twist Capsule/Slip Ring Subsystems. Detailed Design. Primary Weapon Detailed Design is ongoing. Ammunition Handling and Primary Weapon will complete Detailed Design. The NLOS-M Mission Module (MM) and MGV Preliminary Design Review (PDR) complete 1st and 2nd quarter FY09.		11068	
CONTRACTOR NLOS-M - FY08 - Prototype - Phase 2 firing platform updated to include a Round Detection Device, threshold level IBARS breech components and round placement equipment. Long lead procurement of the Firing Platform included ammunition handling magazines, shuttles and motors. Prototype Firing Vehicle initiated. The numbering sequence for NLOS-M Prototypes is P41 - P42.	2107		
CONTRACTOR NLOS-M - FY09 - Prototypes -. IA&C of the Mortar Firing Platform (MFP) was completed and delivered to Camp Ripley MN I the 2nd Qtr of FY09. Mortar Firing Platform (MFP) 3 shipped to Camp Ripley during 2nd Qtr FY09 for Phase III testing. Fabrication of MFP 4 begins and completed. IA&C of MFP 4 begins. MFP 4 will be chassis mounted allowing the unit to be fired at maximum range and rates		2365	
CONTRACTOR NLOS-M - FY08 - Test - Firing platform tests completed on the test stand at Camp Ripley. Phase 2 firing platform updated and fired 569 rounds at Camp Ripley. Slip Ring Component Maturation Platform (CMP) tests completed. CMP testing completed after delay expired.	690		
CONTRACTOR NLOS-M - FY09 - Test - Beginning in 2Q FY09, testing of the MFP (3) begins to determine solution for debris management, platform checkout, maximum range demo, and Multiple Rounds Simultaneous Impact (MRSI) demo. Fabrication of MFP 4 begins and completed. Reliability Enhancement Testing (RET) begins 3rd quarter of FY09 conducted at the Systems Integration Facility (SIF) in Minneapolis, MN. The objective of Phase III testing is to continue the development of the Army's first breech loaded Mortar. Phase III testing will validate the improvements made to components as a result of Phase II testing. Improvements to the In-Bore Air Regulating System (IBARS), the Automated Mortar Cleaning & Cooling System (AMCS), the firing pin assembly, and the breech have been incorporated in the hardware for Phase III testing.		768	
CONTRACTOR NLOS-M - FY08 - Software - Build 2 continues. Build 2 software provides basic Direct and Indirect Fires capability for the Mortar, and interoperability with FCS Battle Command. Mortar Software Simulation provided for System of Systems analysis and	2221		

demonstration. Completed Life Cycle Objective (LCO). Reviewed first two of six Software Engineering cycles (2.2 and 2.3) completed. NLOS-M Build 2 software provides indirect fire (non-line of sight) mission operation, inventory management and resupply, near crest management, and state and capability management, as well as integration of common chassis capabilities for vehicle propulsion, power distribution and control, suspension, environment control, crew station interface, and hit avoidance.			
CONTRACTOR NLOS-M - FY09 - Software - Build 2 initial drop for system integration. Software Build 2 Life Cycle Assessment (LCA) review, Build 3 Requirement Baseline Review (RBR), Build 3 begins. Modeling and Simulation: Build 3 Fire Support Equipment (FSE) available from MS&I. NLOS-M Build 3 software provides Line of Sight (LOS) fire mission operations, complete subsystem fault management, recovery and reporting, and support for Embedded Training (Live, Virtual, Constructive Training Capability) as well as integration of common chassis capabilities for hit avoidance enhancements, and close combat armament system.		2673	
CONTRACTOR COMMAND & CONTROL VEHICLE (C2V) FY08 - Engineering & Program Management - Developed preliminary design for the C2V mission workstation and controls. Prepared Preliminary Design Review (PDR) artifacts for the C2V mission module review in Nov 08 and vehicle level PDR in 2nd Qtr FY09. Completed C2V requirements compliance assessment. Documented C2V Human Factors Engineering/MANPRINT report.	14924		
CONTRACTOR COMMAND & CONTROL VEHICLE (C2V) FY09 - Engineering & Program Management - Conducted C2V preliminary design review, 1st Qtr FY09. Prepare artifacts and mature C2V design for Critical Design Review (CDR) in FY10. Finalize C2V Interface Control Documents (ICDs) and Critical Item Development Specification (CIDS).		16818	
CONTRACTOR COMMAND & CONTROL VEHICLE (C2V) FY08 - Prototype - Established C2V System Integration Lab (SIL) for phase 1 integration and testing of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) hardware. Populated SIL with C2V subcomponents, surrogates, or emulators and other subsystems as available (GPCS, EO CEEU, and Sensor Suite Hardware & Pre-CDR Software) . The C2V Prototypes are numbered P91 - P95.	559		
CONTRACTOR COMMAND & CONTROL VEHICLE (C2V) FY09 - Prototypes - Develop prototype mission workstation/controls hardware. Hardware includes displays, hand controllers, seats, keyboards, and mounting hardware for displays. Receive C4ISR hardware (WIN-T, ANS, SREO) and Integrated Computer System (ICS Type 1 and 1A) emulators.		1821	
CONTRACTOR COMMAND & CONTROL VEHICLE (C2V) FY08 - Test - Completed phase 1 C2V rooftop deconfliction testing at Electronic Proving Grounds (EPG), Ft. Huachuca, AZ and publish results for use in Modeling and Simulation (M&S) efforts on all MGV platforms. MGV Rooftops are densely packaged with Antennas, Sensors, Weapons, and Survivability system placements which could cause physical, functional, and electromagnetic conflicts. In addition, there is a potential for co-site interference between MGVs when in close proximity. The three phased Rooftop Deconfliction testing at EPG, Ft. Huachuca is designed for early and ongoing assessments of component interaction for design improvements. The objective is to incrementally add new antennas and sensors as they become available and mature to increase fidelity of the overall testing to reduce co-site interference and influence integrated design of all MGV vehicles.	58		
CONTRACTOR COMMAND & CONTROL VEHICLE (C2V) FY09 - Test - Perform C2V rooftop deconfliction phase 2 testing at EPG, Ft. Huachuca, AZ using more mature communications equipment than was used in Phase 1. Test results will provide data to ensure that antenna placement on the C2V is optimized and that any electromagnetic conflicts are mitigated. Results will also provide modeling information for antenna placement and mitigation measures applicable to other MGVs.		100	
CONTRACTOR COMMAND & CONTROL VEHICLE (C2V) FY08 - Software - Initiated work on development of C2V Software Requirements Specification, Developed C2V software architecture and began C2V software development and integration in support of	1067		

MGV Software Build 2.0. Created C2V vehicle simulation model for M&S and provided to System of Systems Integration Laboratory (SOSIL) for integration and verification. C2V Build 2 software provides platform assignment, mission workstation and mission workstation entry, as well as integration of common chassis capabilities for vehicle propulsion, power distribution and control, suspension, environment control, crew station interface, and hit avoidance.			
CONTRACTOR COMMAND & CONTROL VEHICLE (C2V) FY09 - Software - Complete and integrate Software Build 2.0. Start effort on Software Build 3.0. Continue integration of latest release of common/C4ISR software/hardware in the C2V. C2V Build 3 software provides complete subsystem fault management, recovery and reporting, and support for Embedded Training (Live, Virtual, Constructive Training Capability) as well as integration of common chassis capabilities for hit avoidance enhancements, and close combat armament system.		1273	
CONTRACTOR RECONNAISSANCE & SURVEILLANCE VEHICLE (RSV) FY08 - Engineering & Program Management - Developed preliminary design for the RSV mission workstation and controls. Prepared Preliminary Design Review (PDR) artifacts for the RSV mission module review in 1st Qtr FY09 and common vehicle level PDR in 2nd Qtr FY09. Provided requirements to BAE for ICV/RSV MK44 turret for subsystem development. Completed RSV requirements compliance assessment. Documented RSV Human Factors Engineering/MANPRINT report.	14789		
CONTRACTOR RECONNAISSANCE & SURVEILLANCE VEHICLE (RSV) FY09 - Engineering & Program Management - Conducted RSV mission module review in 1st Qtr FY09 and RSV preliminary design review, 2nd Qtr FY09. Prepare artifacts and mature RSV design for Critical Design Review (CDR), 2nd Qtr FY10. Finalize RSV Interface Control Documents (ICDs) and Critical Item Development Specification (CIDS).		18977	
CONTRACTOR RECONNAISSANCE & SURVEILLANCE VEHICLE (RSV) FY08 - Prototypes - Established RSV Systems Integration Lab (SIL) for phase 1 integration and testing of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) hardware in anticipation of prototype fabrication. Populated SIL with RSV subcomponents, surrogates, or emulators and other subsystems as available (GPCS, EO CEEU, and Sensor Suite Hardware & Pre-CDR Software).	2141		
CONTRACTOR RECONNAISSANCE & SURVEILLANCE VEHICLE (RSV) FY09 - Prototypes - Procure prototype mission workstation/controls hardware. Hardware includes displays, hand controllers, seats, keyboards, and mounting hardware for displays. Receive C4ISR sensors (EMS, LREO, MFRF, and BTID), Integrated Computer System (ICS) emulators, WIN-T, and ANS. Order material for Armor structure, chassis structure, ECS, fuels subsystem, mission structure, NBC System, SIGMAN Subsystem, MK44/M240 Coax, and Turret Structure. Order long lead materiel for propulsion system and suspension system in preparation for RSV prototype builds. Begin Hull Fabrication of two RSV Prototypes (P31-P32).		1073	
CONTRACTOR RECONNAISSANCE & SURVEILLANCE VEHICLE (RSV) FY08 - Test - Began Phase 1 RSV rooftop deconfliction testing at Electronic Proving Grounds (EPG), Ft. Huachuca, AZ, 4th Qtr FY08. MGV Rooftops are densely packaged with Antennas, Sensors, Weapons, and Survivability system placements which could cause physical, functional, and electromagnetic conflicts. In addition, there is a potential for co-site interference between MGVs when in close proximity. The three phased Rooftop Deconfliction testing at EPG, Ft. Huachuca is designed for early and ongoing assessments of component interaction for design improvements. The objective is to incrementally add new antennas and sensors as they become available and mature to increase fidelity of the overall testing to reduce co-site interference and influence integrated design of all MGV vehicles.	70		
CONTRACTOR RECONNAISSANCE & SURVEILLANCE VEHICLE (RSV) FY09 - Test - Completed Phase I RSV Rooftop Deconfliction Test at Electronic Proving Grounds (EPG) (Nov 08), and publish results for use in Modeling and Simulation (M&S) efforts		97	

on all MGV platforms. Perform RSV rooftop deconfliction Phase 2 testing at EPG, Ft. Huachuca, AZ, 4th Qtr, FY09.			
CONTRACTOR RECONNAISSANCE & SURVEILLANCE VEHICLE (RSV) FY08 - Software -Initiated work on development of RSV Software Requirements Specification, Developed RSV software architecture and began RSV software development and integration in support of MGV Software Build 2.0. Created RSV vehicle model for M&S and provided to System of Systems Integration Laboratory (SOSIL) for integration and verification phase II. RSV Build 2 software provides common fire control for MK-44 and coax guns, reconnaissance platform assignment, mast operation, operation and control, and mission/commander workstation arbitration, as well as integration of common chassis capabilities for vehicle propulsion, power distribution and control, suspension, environment control, crew station interface, and hit avoidance.	144		
CONTRACTOR RECONNAISSANCE & SURVEILLANCE VEHICLE (RSV) FY09 - Software - Continue integration of latest release of Common/C4ISR software/hardware. Complete development and continue integration of MGV Software Build 2.0. Start development effort on MGV Software Build 3.0. RSV Build 2 software provides common fire control for MK-44 and coax guns, reconnaissance platform assignment, mast operation, operation and control, and mission/commander workstation arbitration, as well as integration of common chassis capabilities for vehicle propulsion, power distribution and control, suspension, environment control, crew station interface, and hit avoidance.RSV Build 3 software provides complete subsystem fault management, recovery and reporting, and support for Embedded Training (Live, Virtual, Constructive Training Capability) as well as integration of common chassis capabilities for hit avoidance enhancements, and close combat armament system.		1295	
CONTRACTOR FIELD RECOVERY & MAINTENANCE VEHICLE (FRMV) - FY08 - Design and Development - Evaluated alternate crane platform designs and optimized the FRMV suspension system for stability during maintenance and recovery operations. Optimized the FRMV weight for towing conditions and the FRMV towing capacity in varying terrain and environmental conditions. Finalized the FRMV towing design for propulsion, suspension and braking. Conducted crane actuator and recovery winch SFRs and PDRs. Continued preliminary design activities in preparation for 2nd qtr FY09 PDR. Awarded crane actuator, recovery winch and hoist winch sub-contracts.	7856		
CONTRACTOR FIELD RECOVERY & MAINTENANCE VEHICLE (FRMV) - FY09 - Engineering & Program Management - Conduct hoist winch PDR and CDR. Conduct crane actuator and recovery winch CDRs. Conducted FRMV PDR in 2nd qtr FY09 in preparation for an FRMV Critical Design Review (CDR) in 2nd qtr FY10. Refine the FRMV vehicle design in the areas on integrated design, structure, armor, lifting crane platform, recovery system, mission crew system, and maintenance systems. Integrate FRMV subsystem hardware with software in the FRMV system integration lab, and coordinate sensor and communication systems hardware and software deliveries.		7108	
CONTRACTOR FIELD RECOVERY & MAINTENANCE VEHICLE (FRMV) - FY08 - Prototype - Initiated FRMV crane test stand development activities. Conducted crane boom actuator, recovery winch, and hoist winch component development prototype activities. The FRMV Prototypes are numbered P51 - P52.	4568		
CONTRACTOR FIELD RECOVERY & MAINTENANCE VEHICLE (FRMV) - FY09 - Prototype - Accept delivery of crane actuator (1 brassboard and 1 prototype), recovery winch (1 brassboard and 2 prototypes) and hoist winch (1 brassboard and 2 prototypes). Fabricate and assemble FRMV crane test stand utilizing brassboard hardware. Initiate FRMV sub-system testing using the FRMV crane test stand. Initiate procurement of unique mission equipment raw material, to include welder, cutter & heating equipment that will be stored on the FRMV and used in recovery and maintenance operations.		3976	
CONTRACTOR FIELD RECOVERY & MAINTENANCE VEHICLE (FRMV) - FY08 - Software - Continued FRMV Software Build 2	1805		

development activities and conducted the Build 2 Life Cycle Objective (LCO). FRMV Build 2 software provides crane boom and base control, hoist and recovery winch controls, and stabilizer control, as well as integration of common chassis capabilities for vehicle propulsion, power distribution and control, suspension, environment control, crew station interface, and hit avoidance.			
CONTRACTOR FIELD RECOVERY & MAINTENANCE VEHICLE (FRMV) - FY09 - Software - Continue Software Build 2, and initiate Software Build 3 development activities while conducting Build 3 Life Cycle Objective (LCO). Modeling and Simulation: Integrate Build 3 into MS&I activities and begin integrated system model (ISM) update. FRMV Build 3 software provides dismounted operation, remote diagnostics and software reprogramming, complete subsystem fault management, recovery and reporting, and support for Embedded Training (Live, Virtual, Constructive Training Capability) as well as integration of common chassis capabilities for hit avoidance enhancements, and close combat armament system.		1462	
CONTRACTOR MEDICAL VEHICLE (MV-E/T) - FY08 - Engineering & Program Management - Conducted subsystem evaluations using the MV-E and MV-T mock-ups. Continued preliminary design activities assessing overall design and functionality of the MV mission area to include evaluating the litter lift handling system, treatment table, medic work station and placement of medical equipment in preparation for a 2nd qtr FY09 PDR. Fabricated MV-Treatment mock-up for the evaluation of treatment table options, blood refrigerator options, deployable shelter options, and medical equipment sets/patient movement items stowage design options. Started process of down selection of MV-T Shelter, and evaluated treatment tables.	5192		
CONTRACTOR MEDICAL VEHICLE (MV-E/T) - FY09 - Engineering & Program Management - Conducted MV PDR in 2nd qtr FY09 in preparation for FCS SoS PDR in 3rd qtr FY09. Continue the development maturation of MV integrated design, structure, litter lift handling system, patient stabilization system, medical monitoring equipment, on-board oxygen concentrator, treatment table, blood refrigerator, and shelter. Continue integration of medical equipment sets and patient movement item into MV mission module. Initiate MV SIL activities.		4123	
CONTRACTOR MEDICAL VEHICLE (MV-E/T) - FY09 - Prototypes - Initiate integration activities for the MV-E (P71) & MV-T (P81) prototype fabrication of two prototypes Initiate the development of the litter lift handling system, shelter, treatment table, medical monitoring station, oxygen concentrator, and blood refrigerator prototypes.		500	
CONTRACTOR MEDICAL VEHICLE (MV-E/T) - FY09 - Test - Conduct MV litter lift handling system, treatment table, shelter subsystem testing. Conduct MV prototype test planning activities.		29	
CONTRACTOR MEDICAL VEHICLE (MV-E/T) - FY08 - Software - Continued MV Software Build 2 development activities and conducted the Build 2 Life Cycle Objective (LCO). MV Build 2 software provides patient monitoring capability, ramp control and mission area light operation as well as integration of common chassis capabilities for vehicle propulsion, power distribution and control, suspension, environment control, crew station interface, and hit avoidance.	1781		
CONTRACTOR MEDICAL VEHICLE (MV-E/T) - FY09 - Software - Continue Software Build 2, conduct Software Build 2 LCA, and initiate Software Build 3 development activities while conducting Build 3 Life Cycle Objective (LCO). Modeling and Simulation: Integrate Build 3 into MS&I activities and begin ISM update. MV Build 3 software provides Automatic Network Reporting (ANR) locks, complete subsystem fault management, recovery and reporting, and support for Embedded Training (Live, Virtual, Constructive Training Capability) as well as integration of common chassis capabilities for hit avoidance enhancements.		1742	
CONTRACTOR Common Crew Station - Supplier Costs for Integration, assembly, test, and checkout to produce common Crew Systems end-items and display for crew/mission stations. Supplier's Design & development costs for Crew Station Hardware IAW Manned Ground Vehicle (MGV) Product Structure Hierarchy. Does not include integration onto associated vehicles. FY08 - Procured	18205	15235	

Crew Station Displays. FY09 - Award contracts for common crew station and major components included video distribution and processing unit, intercom adapter, control panels, and seating.			
CONTRACTOR Common Vetronics (Vehicle Electronics) - Supplier Costs to develop/procure Vehicle Electronics (Vetronics) end-items common to one or more vehicle variants. Supplier Costs for Integration, assembly, test, and checkout for common Vetronics components. Hardware and supporting components of the common Vetronics end-items. Does not include integration onto associated vehicles. FY08 - Delivered Core Vetronics power distribution / control systems for INCR0 MGV Prototypes. FY09 - Deliver Core Vetronics power distribution / control systems for IPC MGV Prototypes, award Servo Motor Controller Type VII Contract.	35268	55517	
CONTRACTOR Common Survivability Suite - Includes Defensive Armament, Light Weight Armor, Countermeasures, Signature Management, Software, Survivability Sensors, Survivability Processor, Nuclear, Biological, Chemical detection, filtration subsystem and Subsystem IAT&C. Efforts to design, develop, procure, and deliver defensive armament FY08 - Awarded CCAS Remote Weapon System subcontract. Procured Laser Warning Receiver Sensor, Initiated LRCM Interceptor subcomponent designs. Verified automatic fire extinguishing system. Conducted Design Verification Test for APS, SRCM. Developed preliminary concepts in program plans for mine kits to meet Mine Resistant Armor Protected (MRAP) threat. Tested Long Range Counter Measure interceptor subcomponent designs. FY09 - Continue LRCM interceptor subcomponent designs. Conduct APS vulnerability test. Continue Hit Avoidance System (HAS) detail design analysis and assessment. Award Multifunction Countermeasure SDD contract. Award Passive Threat Warner (PTW) SDD contract. Complete APS Design Verification Phase I (Technology Readiness Level 6). APS hardware/software Integration and Verification begins. Support Highly Accelerated Life Testing (HALT) and Initial Nuclear Radiation (INR) testing. Complete B1 Threshold Armor and U1 Mine Kit Technology Readiness Level 6 demonstration. Development CCAS Remote Weapon Station. Initiate double pin band track mine testing.	31429	59839	
CONTRACTOR Common Traction/Suspension - Supplier costs for common vehicle Traction / Suspension subsystem end-items. These items will be developed or procured by the Primary Vehicle manufacturer for integration into the Primary Vehicle. Supplier Costs for Integration, assembly, test, and checkout for common Traction / Suspension end-items. This is the engineering, analysis and administration effort to integrate the components into the sub-assemblies, labs, test cells, emulators, simulators, final end item(s) and modeling. The cost of labor to fabricate and assemble sub-assemblies, labs, test cells, emulators, simulators, final end item(s) and modeling. This includes receiving and in-process inspection associated with the assembly. This includes any special tools required for assembly. All testing and performance checking. This includes the cost of test equipment. All labor and travel related to any delivery and set up of the end item and labor for Vehicle Subsystem Validation. Does not involve integration onto associated vehicles. FY08 Conducted light weight band track durability test. Delivered light weight band track and in arm hydro-pneumatic suspension systems for integration onto the NLOS-C P1, P3, P4 and P5 vehicles. FY09 - Integrate and verify active suspension performance on P-4 (Plus). Continue band track test including double pin and continuous loop.	22642	15435	
CONTRACTOR Common Powertrain - This is the engineering, analysis to integrate the components into the sub-assemblies, labs, test cells, emulators, simulators, final end item(s) and modeling. Supplier's recurring and non-recurring Prototype Hardware costs for the Common Powertrain subsystem.Supplier Costs for Integration, assembly, test, test equipment and checkout for common Powertrain end-items. This includes receiving and in-process inspection associated with the assembly. This includes any special tools required for assembly. All labor and travel related to any delivery and set up of the end item and labor for Vehicle Subsystem Validation. Does not involve integration onto associated vehicles. FY08 - Delivered Propulsion/Hybrid Electric Drive components, Environmental Cooling test. Upgraded/procured propulsion components, such as TDS & band track for the NLOS-C P vehicle prototypes. Initiated design of upgraded traction drive system. Demonstrated engine/generator full power output. FY09 -Continue to deliver and support integration of Propulsion Hybrid Electric Drive components into NLOS-C P prototype vehicles.	85200	83079	

CONTRACTOR Common Structure - Vehicle platforms share many structure elements which are developed by the Vehicle suppliers as "Common Subsystems" with design and development costs collected here. Common structure elements will be built, checked out, and then later integrated into the Mission Equipped vehicle. Supplier effort to design, develop, procure, and deliver the Common Hull structure end-items. Supplier effort to design, develop, procure, and deliver Common Base Armor end-items. FY08 - Initiated CBRN destructive and non-destructive material test. Delivered fully functional Chassis structure. Completed component deliveries for P1, P3-6 and continued to support Integration, Assembly and Checkout (IAC). Performed environmental/ballistic test on B1 threshold armor Coupons/panels integrated on a representative hull structure. MGV armor designs refined; (the ARMY develops basic recipe and program then refines the final design for production of MGV specific armor components/panels/etc). FY09 Structure - Begin component deliveries for NLOS Cannon P7,8,2 and FTR, and continue to support Integration. Assembly and Checkout (IAC) of these vehicles. Assemble, and machine hull raw materials. Procure appendages and first hull structure material available.	15744	28463	
CONTRACTOR Common Vehicle Utility - Common Vehicle Utility Subsystems are engineered systems that are part of multiple vehicles. Examples are Hydraulic systems, fuel systems, fire suppression systems, Environmental Control systems,and lighting.Supplier costs for design, development or procurement of these Common "Chassis Auxiliary" systems. Effort to design, develop, procure, and deliver the environmental control system end-item(s). Complete objective designs and procure for all SDD prototypes.	18486	17553	
CONTRACTOR Common Vehicle Software - Embedded Software that is required to support operation of Manned Vehicles that is not specifically included in a particular Common Subsystem or Mission Software package. For MGV, this includes software for mode and state control, system arbitration, operator displays, vehicle performance sensors (Speed, Oil Pressure, Fuel level, etc.) that is common to all MGV's. Mission specific software is rolled up under each Mission platform. This element will also contain costs for Modeling and Simulation effort associated with this Software Subsystem (if any) that is not specifically attributable to a specific Build. FY08 - Began User design interface for Inc 1 SW build 2. Supported Build 1 & 2 S/W release. Completed build 1 S/W development/integration and Build 2 Life Cycle Objective (LCO). FY09 - Build 2 TRR , Build 3 Requirements Baseline Review (RBR) and LCO. Modeling & Simulation: Build 1 complete, Build 2 ongoing, Build 3 begins (FSE from MS&I). Integration and Verification: begin SEIT SIL integration and test. NBC SIL IV2 complete with NBC IV2 complete, begin SEIT SIL integration and test. HAS Controller and Hit Avoidance Countermeasure Controller software Build 2 ongoing. MGV Active Protection System hardware/software Integration and verification begins. SOSIL SIM/ IV2 MV model update.	8135	8971	
CONTRACTOR Common Support Equipment - Collection point for Supplier effort that includes design and development of Support Equipment end-items Common to multiple platforms, or Support Equipment products. Cost to support testing and evaluation of the components and subsystems resides within the subsystem IPTs PM/SE/PPP effort. Coordinate with LSI management in development of and compliance with UA SoS Training Requirements for any such equipment. FY09 - Common Support Equipment Design.	2696	8313	
CONTRACTOR Common Dismounted Control Device - Supplier's cost to design, develop, build, test and maintain the Hardware for the Distributed Control Device (DCD) for control of Unmanned vehicles. Cost of Hardware for the Distributed Control Device (formerly known as the OCU).	7667	25494	
CONTRACTOR Common Platform Integration - The overall management effort within the supplier organizations to manage the MUPV System Engineering, Integration, Assembly, Test & Checkout, Project Management and Logistics Management work. Supplier costs to support LSI's efforts to Conduct performance and design analyses in the context of the FoS MUPV systems to maintain baseline performance, functional, and logical integration; and to perform system performance analyses and trade studies. Supplier costs to establish and manage the system architectures and requirements including interfaces in order to ensure that Common Subsystems, Mission Equipment, and other components of the Primary Vehicle are integrated into an acceptable unit deliverable to LSI for SoS integration and	216895	251859	

testing prior to delivery to the customer. Supplier's management effort collected here will be directed in support of the LSI's effort to ensure functional, physical, and logical integration of each unique system developed including the distributed network, common equipment, and mission equipment. Costs for subcontractor management teams in place to oversee design, development, integration, test, and check out of Common Subsystem end-items, Mission Equipment items, and Primary Vehicle items into the delivered vehicle variants, and to support the LSI in all program planning and management efforts as required.			
GFX FY08 - FY08 - Active Protection System (APS) SME Support, APS Live Fire Motion Based Simulator study, Fragment Impact Test Study: FY09 -APS SME Support, ARDEC IM Explosive Fill Test, ARL/SLAD HA Support.	737	2908	
Armor Development - Develop unique facilities required for ARL Armor development.		2000	
XM307 AP Development Ammo - FY10 requirement terminated in accordance with SECDEF guidance to restart the MGV program.		2497	
Termination Liability			368557
Small Business Innovative Research/Small Business Technology Transfer Programs		21918	
Total	635846	782664	368557

B. Other Program Funding Summary	FY 2008	FY 2009	FY 2010	To Compl	Total Cost
0604661A FCS System of Systems Engr & Program Management	1292514	1414756	1067191	Continuing	Continuing
0604662A FCS Reconnaissance (UAV) Platforms	42772	57190	68701	Continuing	Continuing
0604663A FCS Unmanned Ground Vehicles	78826	102976	125616	Continuing	Continuing
0604664A FCS Unattended Ground Sensors	22007	17011	26919	Continuing	Continuing
0604665A FCS Network Hardware & Software	724397	556301	749182	Continuing	Continuing
0604646A Non Line of Sight - Launch System	246071	208009	88660	Continuing	Continuing
0604647A Non Line of Sight Cannon	133139	89545	58216	Continuing	Continuing
0604666A FCS Spin Outs	84111	111032		Continuing	Continuing
0603639A FCS MRM	43068	40731		Continuing	Continuing
0605625A Manned Ground Vehicle			100000	Continuing	Continuing
WTCV G86100 FCS Core Program	78932	154127		Continuing	Continuing
WTCV G86200 FCS Spin Out Program	1370	67268	327921	Continuing	Continuing

Comment: Comment: Associated Comp Programs:
ASTAMIDS, GSTAMIDS, WIN-T, JTRS-HMS, JTRS-GMR, JTRS-AMF, STARLite SAR/GMTI, RRD, JAVELIN, JCADS, JSLSCAD, DCGS-A, FBCB2, OneTESS, OneSAF

C. Acquisition Strategy The Army awarded the original FCS Contract was awarded to the Boeing Company, 30 May 2003 and definitized 10 Dec 2003. LSI contracted with its One Team Partner's, BAE Systems and General Dynamic Land Systems to execute the SDD contract to build the MGV's. The Manned Ground Vehicle family consist of (9) vehicle platforms which will be produced cooperatively by BAE and GD corporations. During FY09, FCS will complete the systems of Systems platform Preliminary Design Review (PDRs). The MGV portion of the SDD contract will be terminated after completion of all SoS PDR activities. The contract prototype and component assets will be disposed/stored in an orderly and cost efficient manner. The combat vehicle program in FY 2010 will be initiated a new contract and new PE 0605625.

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604660A - FCS Manned Grd Vehicles & Common Grd Vehicle

PROJECT
FC1

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
INFANTRY CARRIER VEHICLE (ICV)	FAR	THE BOEING COMPANY - ST. LOUIS, MO, see remark 2	56736	28576	1-3Q	46498	1-3Q				131810	
MOUNTED COMBAT SYSTEMS (MCS)	FAR	THE BOEING COMPANY - ST. LOUIS, MO, see remark 1	232950	65636	1-3Q	59816	1-3Q				358402	
NON-LINE OF SIGHT MORTAR (NLOS-M)	FAR	THE BOEING COMPANY - ST. LOUIS, MO, see remark 3	57041	23575	1-3Q	16873	1-3Q				97489	
Common Vehicle Components	FAR	THE BOEING COMPANY - ST. LOUIS, MO, see remark 1,2,3	939865	462168	1-3Q	569761	1-3Q				1971794	
COMMAND & CONTROL VEHICLE (C2V)	FAR	THE BOEING COMPANY - ST. LOUIS, MO, see remark 1	75625	16608	1-3Q	20011	1-3Q				112244	
RECONNAISSANCE & SURVEILLANCE VEHICLE	FAR	THE BOEING COMPANY - ST. LOUIS, MO, see remark 1	76631	17144	1-3Q	21441	1-3Q				115216	
Medical Vehicle (MV)	FAR	THE BOEING COMPANY - ST. LOUIS, MO, see remark 3	17631	6973	1-3Q	6394	1-3Q				30998	
FCS RECOVERY & MAINT VEH (FRMV)	FAR	THE BOEING COMPANY - ST. LOUIS, MO, see remark 2	29896	14229	1-3Q	12547	1-3Q				56672	

GFX and other	Direct	PM FCS(BCT), St. Louis, MO	45941	737	1-3Q	2908	1-3Q				49586	
Armor Development	Direct					2000					2000	
XM307 AP Development Ammo	Direct					2497	1-3Q				2497	
Adjustment	Direct			200	1-2Q						200	
Subtotal:			1532316	635846		760746					2928908	

Remarks: Remark #1 - Subcontractor: General Dynamics, Sterling Heights, MI; award date Dec 2003
Remark #2 - Subcontractor: BAE - Ground Systems Division, Santa Clara, CA; award date Dec 2003
Remark #3 - Subcontractor: BAE - Armament Systems Division, Minneapolis, MN; award date Dec 2003

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR	Direct	OSD				21918	1-3Q				21918	
Subtotal:						21918					21918	

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

Remarks: All Test and Evaluation costs for this project are included in PE 0604661A, Project FC2 SoS Engineering and Program Management project.

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Termination Liability	FAR	The Boeing Co. - St. Louis,MO, see Remarks						368557	1-4Q		368557	
Subtotal:								368557			368557	

Remarks: Subcontractor: General Dynamics, Sterling Heights, MI; award date Dec 2003

Subcontractor: BAE - Ground Systems Division, Santa Clara, CA; award date Dec 2003
Subcontractor: BAE - Armament Systems Division, Minneapolis, MN; award date Dec 2003

Project Total Cost:	**1532316**	**635846**		**782664**		**368557**			**3319383**	

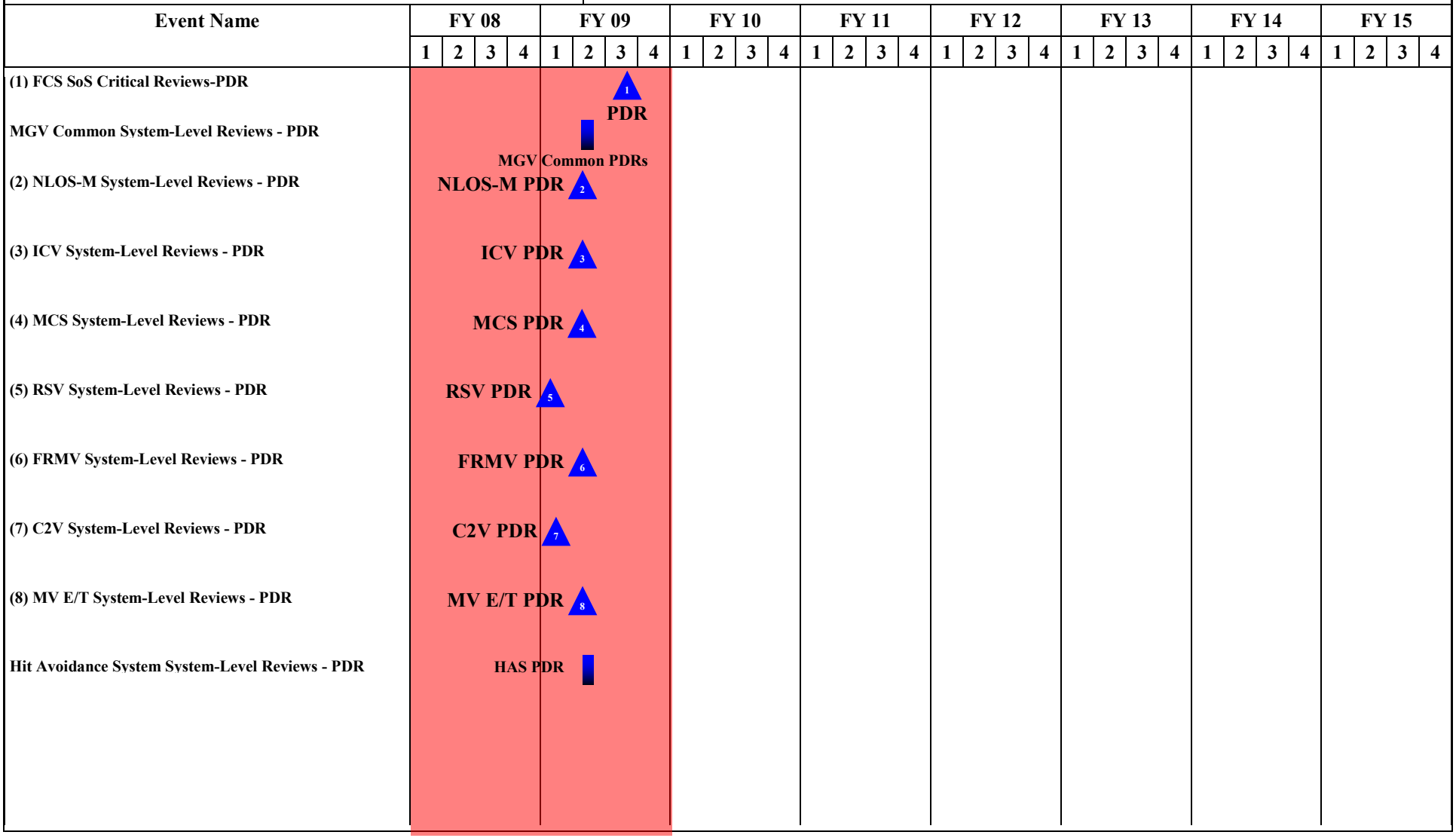
Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604660A - FCS Manned Grd Vehicles & Common Grd Vehicle

PROJECT
FC1



Schedule Detail (R4a Exhibit)

May 2009

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604660A - FCS Manned Grd Vehicles & Common Grd Vehicle

PROJECT
FC1

Schedule Detail	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
FCS SoS Critical Reviews-PDR		3Q						
MGV Common System-Level Reviews - PDR		2Q						
NLOS-M System-Level Reviews - PDR		2Q						
ICV System-Level Reviews - PDR		2Q						
MCS System-Level Reviews - PDR		2Q						
RSV System-Level Reviews - PDR		1Q						
FRMV System-Level Reviews - PDR		2Q						
C2V System-Level Reviews - PDR		1Q						
MV E/T System-Level Reviews - PDR		2Q						
Hit Avoidance System System-Level Reviews - PDR		2Q						

The schedule reflected in this R-Form is based on preliminary analysis of the available budget. Upon further resolution and detailed planning, adjustments may occur which could potentially change the program schedule.