

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Army	DATE: April 2013
-----------------------------------------------------------------------	-------------------------

APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE							
2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>					PE 0604663A: <i>FCS Unmanned Ground Vehicles</i>							
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	-	34.845	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
FC4: <i>BCT UNMANNED GROUND VEHICLES</i>	-	34.845	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

Note

Change Summary Explanation: Funding: FY13: Funding (\$13.141 million) will continue under Program Element 0604641A Project DV7.

A. Mission Description and Budget Item Justification

This PE has no FY 2013 Base or OCO request. The FY2013 funding continues under Tactical Unmanned Ground Vehicle (TUGV) Program Element 0604641A Project DV7.

The Small Unmanned Ground Vehicle (SUGV), designated as the XM1216, is a lightweight (32 lbs), man-portable, direct-current powered UGV capable of conducting Military Operations in Urban Terrain (MOUT), including tunnels, sewers, and caves. The SUGV provides an unmanned capability for those missions that are manpower intensive or high-risk such as Urban Intelligence, Surveillance, and Reconnaissance (ISR) missions in a MOUT environment, and investigating Improvised Explosive Devices and Chemical/Toxic Materials reconnaissance missions without exposing soldiers directly to the hazard. The SUGV will be used to obtain information on situational awareness at the squad level.

SUGV Planned Product Improvements (Increment 1 Follow on) designated as the XM1216E1: The SUGV configuration for a competitive Low Rate Initial Production (LRIP) moving to Full Rate Production (FRP) is based on the SUGV IBCT CPD Threshold Requirements. It will weigh 35 pounds and is capable of carrying up to 4 lbs of payload weight. The SUGV will have the following capabilities: a hardened militarized Electro Optical/Infrared (EO/IR) sensor to meet stringent day & night detection of enemy personnel & systems, a National Security Agency (NSA) compliant radio from the Joint Tactical Radio System program, improved hand controller, the capability to provide grid location of the enemy, and the following capability to mount payloads: tether spooler; manipulator arm; Chemical, Biological, Radiological, Nuclear (CBRN) suite; and Embedded-Tactical Engagement Simulation System (E-TESS).

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Army				DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
2040: Research, Development, Test & Evaluation, Army		PE 0604663A: FCS Unmanned Ground Vehicles			
BA 5: System Development & Demonstration (SDD)					
B. Program Change Summary (\$ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	35.966	0.000	0.000	-	0.000
Current President's Budget	34.845	0.000	0.000	-	0.000
Total Adjustments	-1.121	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-1.121	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army									DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604663A: FCS Unmanned Ground Vehicles				PROJECT FC4: BCT UNMANNED GROUND VEHICLES			
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
FC4: BCT UNMANNED GROUND VEHICLES	-	34.845	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles												
# FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012												
## The FY 2014 OCO Request will be submitted at a later date												
Note												
The FY2013 funding continues under Tactical Unmanned Ground Vehicle (TUGV) Program Element 0604641A Project DV7.												
A. Mission Description and Budget Item Justification												
This PE has no FY 2013 Base or OCO request. The FY2013 funding continues under Tactical Unmanned Ground Vehicle (TUGV) Program Element 0604641A Project DV7.												
The Small Unmanned Ground Vehicle (SUGV), designated as the XM1216, is a lightweight (32 lbs), man-portable, direct-current powered UGV capable of conducting Military Operations in Urban Terrain (MOUT), including tunnels, sewers, and caves. The SUGV provides an unmanned capability for those missions that are manpower intensive or high-risk such as Urban Intelligence, Surveillance, and Reconnaissance (ISR) missions in a MOUT environment, and investigating Improvised Explosive Devices and Chemical/Toxic Materials reconnaissance missions without exposing soldiers directly to the hazard. The SUGV will be used to obtain information on situational awareness at the squad level.												
SUGV Planned Product Improvements (Increment 1 Follow on) designated as the XM1216E1: The SUGV configuration for a competitive Low Rate Initial Production (LRIP) moving to Full Rate Production (FRP) is based on the SUGV IBCT CPD Threshold Requirements. It will weigh 35 pounds and is capable of carrying up to 4 lbs of payload weight. The SUGV will have the following capabilities: a hardened militarized Electro Optical/Infrared (EO/IR) sensor to meet stringent day & night detection of enemy personnel & systems, a National Security Agency (NSA) compliant radio from the Joint Tactical Radio System program, improved hand controller, the capability to provide grid location of the enemy, and the following capability to mount payloads: tether spooler; manipulator arm; Chemical, Biological, Radiological, Nuclear (CBRN) suite; and Embedded-Tactical Engagement Simulation System (E-TESS).												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2012	FY 2013	FY 2014	
Title: SUGV Product Improvement									26.755	0.000	0.000	
									0			
Description: Funding is provided for the following effort												
FY 2012 Accomplishments:												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army			DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604663A: <i>FCS Unmanned Ground Vehicles</i>		PROJECT FC4: <i>BCT UNMANNED GROUND VEHICLES</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)			FY 2012	FY 2013	FY 2014
FY 2012 Description: Complete the build, integration and delivery of five prototypes and payloads in the September 2011-September 2012 timeframe. Conduct termination of Prime SUGV contractor. Award a follow-on SUGV contract to complete development of SUGV Engineering and Manufacturing Development (EMD) to include a bridging effort to continue SUGV development between termination with the Prime and award of the follow on contract to complete SUGV. Conduct the following actions for the EMD follow-on contract: prepare proposal package, solicit and evaluate proposals and award contract for seven SUGV Production prototypes. Tasks include preparing A Spec, B spec and Statement of Work (SOW). Transition responsibilities and work from the Prime to Government counterparts to close out current SUGV contract and ease government takeover of the existing and future contract with SUGV vendor. Close out the SUGV Critical Design Review (CDR) to finalize current design and assess that design to the SUGV CPD. Utilize prototypes to assess CDR to meet CPD requirements and operational utility, (Oct11-Sep12) under the bridging effort. Evaluation and assessment will be used to assess requirement compliance and prepared SOW and Performance Specifications for the Follow-on contract. Assess performance of the Handheld/Manpack/Small Form Fit (HMS) Soldier Radio Waveform (SRW) radio for range, latency and National Security Agency/ Information Assurance Strategy (NSA/ IAS) compliance. Evaluate the performance and operational utility of the Operator Control Unit that will replace the Common Controller that was terminated. Assess design and performance for requirement compliance for payloads, environments, shock/ vibration, and command and control software and platform mobility utility. Evaluate performance of the improved EO/IR sensor to meet critical Key Performance Parameters (KPPs) for day and night recognition. Award follow-on contract (Sep 12) to finalize design, build production prototypes and conduct contractor/government testing. Conduct Delta Critical Design Review (CDR) to confirm design decisions made from the testing with prototypes and changes to the drawing package. Delta CDR will focus on design changes and critical subsystem components: Handheld/Manpack/Small Form Fit (HMS) Soldier Radio Waveform (SRW) radio, Operator Control unit, Software, Payloads: tether, manipulator arm, CBRN detection and E-TESS. Evaluate design to meet CPD requirements. Build seven SUGV Production prototypes (Sep 12-Mar13) with payloads. Conduct integration and contractor checkout of SUGV Production prototypes to include payloads. Prepare for and conduct Developmental Testing (DT) and Operational Testing (OT) in FY13 to complete EMD.					
Title: GOVERNMENT SYSTEMS ENGINEERING/PROGRAM MANAGEMENT Articles: Description: Funding is provided for the following effort FY 2012 Accomplishments: Funding to support the Government program management staff for salaries, travel, computers/cell phones, supplies and building/ office space. The Government program management staff consists of personnel from: Business, Acquisition, Engineering, Logistics, Admin & IT support. Due to the termination of the Brigade Combat Team Modernization (BCTM) EMD Contract (Boeing) and the transition of PEO I to PEO GCS, many of the functions/efforts performed by the Boeing and PEO I will now have to be performed by RS JPO personnel. FY12 efforts will involve major initiatives: completing TDP, developing competitive			6.802 0	0.000	0.000

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army		DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0604663A: <i>FCS Unmanned Ground Vehicles</i>	PROJECT FC4: <i>BCT UNMANNED GROUND VEHICLES</i>
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2012	FY 2013
selection criteria for follow-on contract, developing milestone documentation and analysis to support creation of Acquisition Program Baseline (APB) for the Small Unmanned Ground Vehicle. The UGV team is heavily involved in other efforts such as the potential fielding of the SUGV to units moving to theater, investigating alternative sensors and communications suites to reduce platform cost and weight and managing testing at government facilities.			
Title: GOVERNMENT TEST AND M&S Description: Funding is provided for the following effort. FY 2012 Accomplishments: Developmental testing and Limited User Testing will be conducted for the product improved SUGV platform at Government test sites and facilities. Testing will verify that the product improved SUGV meets requirements for the Handheld/Manpack/Small Form Fit (HMS) Soldier Radio Waveform (SRW) radio, Militarized EO/IR Head and mission payloads (tether and manipulator arm). The SUGV will require detailed test plan development, test range support to include platform and sensor instrumentation, on-site test engineering support for testing and engineer support for data collection and analysis.		Articles: 1.288 0	0.000
Accomplishments/Planned Programs Subtotals		34.845	0.000
C. Other Program Funding Summary (\$ in Millions)			
N/A			
Remarks			
D. Acquisition Strategy			
N/A			
E. Performance Metrics			
Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.			

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>						R-1 ITEM NOMENCLATURE PE 0604663A: <i>FCS Unmanned Ground Vehicles</i>						PROJECT FC4: <i>BCT UNMANNED GROUND VEHICLES</i>			
Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Multifunction Utility/ Logistics Equipment Vehicle (MULE-CM & MULE-T) SPECIAL TERMINATION	Various	The Boeing Company:Various	2.500	-		-		-		-		-	0.000	2.500	2.500
Subtotal			2.500	0.000		0.000		0.000		0.000		0.000	0.000	2.500	2.500
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Small Unmanned Ground Vehicle (SUGV)	Various	The Boeing Company:St Louis, MO	43.150	19.905	Jul 2012	-		-		-		-	0.000	63.055	57.350
Small Unmanned Ground Vehicle (SUGV)	SS/CPIF	i Robot Corporation:Burlington, MA	0.000	9.000		-		-		-		-	0.000	9.000	13.000
Autonomous Navigation System - Software	Various	The Boeing Company:St. Louis, MO	91.877	-		-		-		-		-	0.000	91.877	91.877
MM UGV, (former ARV-A (L))	Various	The Boeing Company:St. Louis, MO	184.741	-		-		-		-		-	0.000	184.741	184.741
Subtotal			319.768	28.905		0.000		0.000		0.000		0.000	0.000	348.673	346.968
Remarks Line 1: Subcontractor to Boeing: iRobot Corp. - Burlington, MA Line 2: This contract will continue under Program Element 0604641A Project DV7 Line 2: Subcontractor: Lockheed Martin Missile and Fire Control - Grand Prairie, TX Line 3: Subcontractor: General Dynamics Robotic Systems - Westminster, MD															

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Army													DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>							R-1 ITEM NOMENCLATURE PE 0604663A: <i>FCS Unmanned Ground Vehicles</i>				PROJECT FC4: <i>BCT UNMANNED GROUND VEHICLES</i>				
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GOVERNMENT SEPM	Various	PEO GCS:Warren, MI	0.150	4.652		-		-		-		-	0.000	4.802	7.628
Subtotal			0.150	4.652		0.000		0.000		0.000		0.000	0.000	4.802	7.628
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GOVERNMENT TEST & EVALUATION M&S	Various	PEO GCS:Warren, MI	0.000	1.288		-		-		-		-	0.000	1.288	1.288
Subtotal			0.000	1.288		0.000		0.000		0.000		0.000	0.000	1.288	1.288
			All Prior Years	FY 2012	FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			322.418	34.845		0.000		0.000		0.000		0.000	357.263	358.384	
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Army			DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604663A: <i>FCS Unmanned Ground Vehicles</i>		
			PROJECT FC4: <i>BCT UNMANNED GROUND VEHICLES</i>		

	FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Incr 1 Production Delivery (Brigades 2 - 3)																												
SUGV EMD Follow On Contract Award																												
SUGV Prototype Build/Delivery																												
Incr 1 Production Delivery (Brigades 4-5)																												
SUGV Testing (IQT)																												
SUGV Testing (LUT)																												
Milestone C Low Rate Initial Production Review (MSC/LRIP REV)																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Army			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604663A: <i>FCS Unmanned Ground Vehicles</i>	PROJECT FC4: <i>BCT UNMANNED GROUND VEHICLES</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Incr 1 Production Delivery (Brigades 2 - 3)	3	2012	3	2012
SUGV EMD Follow On Contract Award	4	2012	4	2012
SUGV Prototype Build/Delivery	1	2013	2	2013
Incr 1 Production Delivery (Brigades 4-5)	2	2013	4	2013
SUGV Testing (IQT)	2	2013	3	2013
SUGV Testing (LUT)	4	2013	4	2013
Milestone C Low Rate Initial Production Review (MSC/LRIP REV)	1	2014	1	2014