

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE February 1999		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604641A Tactical Unmanned Ground Vehicle				PROJECT DE47		
COST (In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
DE47 Tactical Unmanned Ground Vehicle (TUGV)	2397	2452	0	0	0	0	0	0	0	0
<p>A. Mission Description and Budget Item Justification: The Army is the lead for this joint service program. The development of a Tactical Unmanned Ground Vehicle (TUGV) provides commanders the ability to see the battlespace while at the same time reducing soldiers' exposure during dangerous reconnaissance, surveillance, target acquisition (RSTA) and Nuclear Biological and Chemical (NBC) detection missions. Performs as a force multiplier, eliminates trickle-down combat information, reduces the "fog-of-war" and fills the brigade intelligence gap. Most importantly, the TUGV will remove brigade and battalion commanders from the bottom of the combat intelligence food chain. Unmanned systems, operating out front, provide a force multiplication capability where TUGVs report the nature of the terrain, find the enemy, locate obstacles, acquire targets, detect chemical vapors, and provide this information directly to those who need it the most –the battalion commander's battle staff. There will be two versions of the TUGV. A medium version, Tactical Unmanned Vehicle-Medium (TUV-M), will be developed for emerging requirements such as those from the U.S. Army Armor Center and United States Marine Corps Light Strike Vehicle. Tactical Unmanned Vehicle-Light (TUV-L) will be a man-packable unit for intelligence collection and dissemination, and conducting remote/area/building reconnaissance. The platform will include a minimum day/night audio/video, and accept a family of modular multi-sensor capabilities such as through-wall and countersniper sensors. Data will be produced in a format compatible with higher level communications architecture. This PE supports the critical transition of Defense Advanced Research Project Agency (DARPA) developed technologies to the Project Manager (PM) Unmanned Ground Vehicles/Systems so that they can be assessed (maturity, supportability, operationally) during user appraisals and, packaged and readied for incorporation into the TUV Engineering and Manufacturing Development (EMD) performance specifications.</p> <p>FY 1998 Accomplishments:</p> <ul style="list-style-type: none"> • 344 Completed transfer of mature technologies from DARPA Demo II Program • 1523 24 upgrades along with additional improvements were made to the SARGE systems. • 330 Modeling and Simulation • 200 Completed User Appraisals with the 2-69 Armor Battalion scout platoon <p>Total 2397</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 868 Concept Exploration/Design – TUV – Light/Participate MOUT ACTD • 659 Modeling and simulation (e.g. High Fidelity/Multiple Level of Detail Terrain Database Dev., APEX Simulator, Target & Background Signature Database) • 200 Assess Demo III technology for insertion into specification • 660 Datalink Testing (e.g. Characterize Performance of 4 GHz SARGE Video Link, Antenna Pattern Testing, Electromagnetic Environmental Effects Program) • 65 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 2452</p>										
Project DE47	Page 1 of 4 Pages						Exhibit R-2 (PE 0604641A)			

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE February 1999
---	------------------------------

BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604641A Tactical Unmanned Ground Vehicle	PROJECT DE47
--	--	-------------------------------

B. Program Change Summary	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget (FY 1999 PB)	2604	2465	2428	2380
Appropriated Value	2687	2468		
Adjustments to Appropriated Value				
a. Congressional General Reductions	-83	-16		
b. SBIR / STTR	-66			
c. Omnibus or Other Above Threshold Reductions	-22			
d. Below Threshold Reprogramming	-119			
e. Rescissions				
Adjustments to Budget Years Since FY 1999 PB			-2428	-2380
Current Budget Submit (FY 2000 / 2001 PB)	2397	2452	0	0

Change Summary Explanation: Funding - FY00 and FY01: Funds realigned to higher priority requirements.

C. Other Program Funding Summary	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Compl</u>	<u>Total Cost</u>
OSD funding in PE 0604709D8Z				2929						
OPA III, M8040, Mini-Flail Robotics				3622	4660					
OPA III,R8050, Kit, Std Teleoperating			3972							

D. Acquisition Strategy: The Joint Project Office is following a disciplined Evolutionary Acquisition strategy. This strategy requires Horizontal Technology Integration (HTI) of emerging sensors, lasers, and command and control data link technologies so that the first generation TUGV will enable soldiers to perform dangerous RSTA, biological and chemical detection, and targeting missions from remote and safer locations. This program differs from traditional acquisition programs by incorporating an in-house Program Definition and Risk Reduction phase. TUV-M prototype systems are being built during this phase using state-of-the-art sensors, controlling actuators, low bandwidth communications, mission planning, and off-road navigation technologies. The program utilizes a TUGV Integrating Integrated Product Team (IIPT) approach. TUV-L concept exploration and design will be performed simultaneously, with a projected Milestone I decision in FY 2001.

E. Schedule Profile	<u>FY1996</u>	<u>FY1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
ACTD Participation				3-4Q						
Demonstration Alpha (Demo III)				4Q						
Demo III IPRs				3Q						
Demo III CDRs				3Q						
Participate in Demo III Communications IPT				1-4Q						
Datalink Testing				1-4Q						

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)										DATE February 1999		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604641A Tactical Unmanned Ground Vehicle					PROJECT DE47		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. TUV-L/ACTD	TBD	TBD		534	3Q						534	550
Subtotal Product Development:				534							534	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. USAIS Support ACTD	TBD	TBD		150	3Q						150	150
b. Gov Eng Support	MOA	RDEC	300	118	2Q						418	
c. Demo III Tech Assess	MOA	RDEC		200	2Q						200	
Subtotal Support Costs:			300	468							768	
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Terrain Database Dev	MOA	RDEC		190	2Q						190	
b. Signature Dev	MOA	RDEC		88	2Q						88	
c. Vehicle Model Dev	MOA	RDEC		75	2Q						75	
d. Target Database Dev	MOA	RDEC		60	2Q						60	
e. APEX Simulator	MOA	RDEC		130	2Q						130	
f. Electromagnetic Enviro Effects Prog	MOA	RTTC		30	2Q						30	
g. 4 GHz Video Link	TBD	SAIC		187	4Q						187	200
h. Antenna Pattern Testing	MOA	RTTC		140	2Q						140	
i. FO Bobbin Design/Test	MOA	RDEC		75	2Q						75	
j. FO Bobbin Turns Counter/Shroud Improv	MOA	RDEC		70	2Q						70	
k. FO ARTS Prog/Alt FO	CPFF	Morgan Research		90	1Q						90	100
l. FO ARTS Prog/Alt FO	MOA	RDEC		50	2Q						50	
Subtotal Test and Evaluation:				1185							1185	

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)	DATE February 1999
---	------------------------------

BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604641A Tactical Unmanned Ground Vehicle	PROJECT DE47
---	---	------------------------

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Prog Mgmt/Eng	MOA	RDEC/CAD	265	265	2Q						530	
Subtotal Management Services:			265	265							530	

Project Total Cost:			565	2452							3017	
---------------------	--	--	-----	------	--	--	--	--	--	--	------	--