

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

June 2001

BUDGET ACTIVITY
4 - DEM/VAL

PE NUMBER AND TITLE
0603653A - Advanced Tank Armament System

COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	16482	265681	101461	0	0	0	0	0	0	0
B99 TANK & MEDIUM CALIBER ARMAMENTS	1870	8735	2003	0	0	0	0	0	0	0
C03 INTERIM ARMORED VEHICLE (IAV) FAMILY	14612	256946	99458	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification:

PLEASE NOTE: This administration has not addressed FY2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

The Advanced Tank Armament System Program Element supports two projects: Project DB99 (Tank and Medium Caliber Armaments) and Project DC03 (Interim Armored Vehicle Development).

These systems supports the Legacy and Objective transition paths of the Transformation Campaign Plan (TCP). Tank and Medium Caliber Armaments is an Acquisition Category (ACAT) Level III project that involves several efforts. First, it looks at promising tank and medium caliber technologies and assesses advantages and disadvantages of each technology, as well as costs and implementation impacts. If successful, the technology can move into further development or into production. Second, DB99 leverages Joint Service/Other Government Agency Programs to save RDT&E and procurement dollars. Finally, this project supports the International Quadripartite Agreement among the U.S., France, Germany and the United Kingdom for cooperative development effort for risk reduction on Future Main Armaments.

An immediate need exists for an Interim Armored Vehicle (IAV) equipped C-130 transportable Brigade Combat Team (BCT), capable of deployment anywhere on the globe in a combat ready configuration. The IAV family is the force and consists of an Infantry Carrier (ICV), Reconnaissance Vehicle (RV), Mobile Gun System (MGS), Mortar Carrier (MC), Commander's Vehicle (CV), Fire Support Vehicle (FSV), Engineer Squad Vehicle (ESV), Medical Evacuation Vehicle (MEV), Anti-Tank Guided Missile Vehicle (ATGM), and NBC Reconnaissance (NBC RV). This system supports the Interim transition path of the Transformation Campaign Plan (TCP).

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<u>B. Program Change Summary</u>	FY 2000	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2001 PB)	1922	118139	177609	0
Appropriated Value	1937	268139	0	
Adjustments to Appropriated Value	0		0	
a. Congressional General Reductions	0	0	0	
b. SBIR / STTR	-52		0	
c. Omnibus or Other Above Threshold Reductions	-8		0	
d. Reprogramming	14612		0	
e. Rescissions	-7	-2458	0	
Adjustments to Budget Years Since FY2001 PB	0		-73148	
Current Budget Submit (FY 2002/2003 PB)	16482	265681	104461	0

FY2000 Funding - Reprogramming due to initiation of Army Transformation.

FY2001 Funding - Project DC03 Congressional appropriation plus-up for program test requirements.

FY2002/2003 Funding - Interim Armored Vehicle (IAV) funding is aligned with the current Army cost Position.

Project DB99 - Funding in FY2002 (-\$6.8M) and FY2003 (-\$6.8M) have been realigned to fund higher priority requirements.

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COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
B99 TANK & MEDIUM CALIBER ARMAMENTS	1870	8735	2003	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: Tank and Medium Caliber Armament System provides assured leap-ahead lethality improvements for Legacy, Interim and Objective Forces as outlined in the Army Transformation Campaign Plan. This program applies maturing fire control system, gun, and ammunition loading system technologies to platform vehicles for system level demonstrations. If successful, these technologies can proceed to further development or production. The program exploits opportunities to reduce RDT&E and procurement costs by leveraging on-going Joint Service Programs and, in addition, evaluates operations and support cost savers. This program also supports the International Quadripartite Agreement among the United States, France, Germany and the United Kingdom in a cooperative effort for risk reduction development on Future Main Armaments.

FY 2000 Accomplishments

- 400 Completed Joint System Level Demonstration with the Marine Corps of an Automatic Target Tracker (ATT) for the Abrams Tank.
- 117 Completed Electronic Muzzle Reference Sensor (EMRS) testing to support incorporation of an ECP to eliminate Tritium, a radioactive element, from the Abrams Tank.
- 413 Transferred a reconfigurable Armored Vehicle Simulator, fire control unit and crew station processor to the Future Scout and Cavalry System Program.
- 440 Completed Hardstand and Gun Testing of L55/M256E1 Guns.
- 500 Completed Integration of L55/M256E1 guns into the Abrams Test Vehicle.

Total 1870

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FY 2001 Planned Program

- 1240 Complete Investigation of L55/M256E1 Gun for Legacy Abrams Tank
Interim & Objective Fire Control Improvements:
 - 658 Apply L55/M256E1 Stabilization Work to Shorter Gun Tube (TGAC)
 - 2761 Extended Range Munitions (ERM) Fire Control - Analysis of Alternatives
Interim & Objective Gun Improvements:
 - 1440 Bore Coatings - Pursue Parallel Coating Approaches
 - 450 Gun Barrel Straightening - Machine and Measurement Equipment Definition
 - 1941 Medium Caliber Baseline Modeling and Simulation
 - 245 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)
- Total 8735

FY 2002 Planned Program

- 1315 Interim and Objective Fire Control Improvements
ERM Fire Control - System Level Simulation Definition
Interim & Objective Gun Improvements
 - 298 Bore Coatings - Test Tantalum Coated Medium Caliber Barrel
 - 190 Gun Barrel Straightening - Machine, Measurement Equipment and Algorithm Development
 - 200 Medium Caliber Analysis of Alternative
- Total 2003

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B. Other Program Funding Summary: Not applicable for this item.

C. Acquisition Strategy: The technologies in Tank & Medium Caliber Armaments will be demonstrated then transferred to weapon platform PMs for further technological development and will flow into the next major upgrade or Engineering Change Proposal (ECP). Several contractors and government agencies are used to develop or integrate existing technologies.

<u>D. Schedule Profile</u>	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
L55/M256E1 gun barrel testing	1-4Q	1Q		0	0	0	0	0
Complete Auto Target Tracker Demonstration	2Q			0	0	0	0	0
Transfer Components to FSCS	2Q			0	0	0	0	0
L55/M256E1 hardware & software test	2-4Q	1Q		0	0	0	0	0
Complete EMRS testing	3Q			0	0	0	0	0
Complete L55/M256E1 tank integration	3-4Q	2Q		0	0	0	0	0
Complete L55/M256E1 Investigation		4Q		0	0	0	0	0
Apply Stabilization Work to Shorter Gun		3-4Q		0	0	0	0	0
ERM Fire Control Analysis of Alternatives		2Q		0	0	0	0	0
Complete ERM Fire Control Analysis of Alternatives		4Q		0	0	0	0	0
Tantalum Coat 45mm Gun Barrel		3Q		0	0	0	0	0
Test LISI Coating of 120mm Gun Tube		2Q		0	0	0	0	0
Define Gun Barrel Straightening Machinery		1-4Q		0	0	0	0	0
Begin Medium Caliber - Modeling & Simulation		1Q		0	0	0	0	0
Complete Medium Caliber - Modeling & Simulation		4Q		0	0	0	0	0
Define ERM Fire Control Simulation			1-4Q	0	0	0	0	0
Test Tantalum Coated Medium Caliber Barrel			3Q	0	0	0	0	0
Medium Caliber Analysis of Alternatives			1-4Q	0	0	0	0	0
Design ERM System Level Components				0	0	0	0	0
Medium Caliber System Definition				0	0	0	0	0
Apply Tantalum Coating to Large Caliber Tube				0	0	0	0	0
Apply Gun Tube Straightening Process to First Tube				0	0	0	0	0

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D. Schedule Profile (continued)

FY 2000 FY 2001 FY 2002 FY 2003 FY 2004 FY 2005 FY 2006 FY 2007

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I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . M256E1/FTMA/Bore Coatings	MIPR	Benet Labs, Watervliet, NY Gov	7286	900	1Q	100		0	0	0	0	0
b . L55 Gun Tubes	SS & FP	Rheinmetall, Ratingen, GE	1000	650	1Q	0		0	0	0	0	0
c . Stabilization Work	SS & CPFF	GDLS, Sterling Heights, MI	0	500	1Q	0		0	0	0	0	0
d . M1A2 Integration	SS & CPFF	GDLS, Sterling Heights, MI	4070	0		0		0	0	0	0	0
e . Fire Control Development	CPFF	Raytheon (TI) Systems, Dallas, TX	19526	500	1Q	0		0	0	0	0	0
f . System Simulation	CPFF	Raytheon, Dallas, TX	0	1049	2Q	1096		0	0	0	0	0
g . Fire Control Development	MIPR	ARDEC, Picatinny Arsenal, NJ	1135	560	1Q	100		0	0	0	0	0
h . EMRS	MIPR	ARDEC, Picatinny Arsenal, NJ	657	0		0		0	0	0	0	0
i . ATT	MIPR	Multiple	471	0		0		0	0	0	0	0
j . Medium Caliber Modeling and Simulation	MIPR	ARDEC, Picatinny Arsenal, NJ	0	1941	1Q	100		0	0	0	0	0

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I. Product Development (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
k . Tube Straightening	MIPR	Multiple	0	450	1Q	150		0	0	0	0	0
l . Bore Coatings	CPFF	GDLS, Sterling Heights, MI	0	740	2Q	100		0	0	0	0	0
m . Miscellaneous	MIPR	Multiple	912	345	1-3Q	107		0	0	0	0	0
Subtotal:			35057	7635		1753		0		0	0	0

II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

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III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Testing L55/M256E1	MIPR	Aberdeen Test Center, APG, MD	0	290	1Q	0		0	0	0	0	0
b . Tantalum Testing	MIPR	Bourges, France	0	0		100		0	0	0	0	0
Subtotal:			0	290		100		0		0	0	0

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Program Management		PM-TMAS	724	810	1-4Q	150		0	0	0	0	0
Subtotal:			724	810		150		0		0	0	0

Project Total Cost:			35781	8735		2003		0		0	0	0
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

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BUDGET ACTIVITY 4 - DEM/VAL			PE NUMBER AND TITLE 0603653A - Advanced Tank Armament System					PROJECT C03		
COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
C03 INTERIM ARMORED VEHICLE (IAV) FAMILY	14612	256946	99458	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: This Project (DC03) supports the development of the Family of Interim Armored Vehicles (IAV). An immediate need exists for a rapidly deployable force to improve the deployability and operational effectiveness of rapid response/early entry forces. The IAV equipped C-130 transportable Brigade Combat Team (BCT) will be capable of deployment to anywhere on the globe in a combat ready configuration. A dynamic asymmetric threat and operational environment demands full spectrum, strategically responsive, agile and dominant land forces. Immediate response by a lethal, versatile, tactically agile joint force capable of operational maneuver once in the Area of Operations is essential to fulfilling the Warfighting needs of the U. S. Army. The IAV-equipped BCT is this force. The IAV family includes the following planned systems: Infantry Carrier (ICV), Reconnaissance Vehicle (RV), Mobile Gun System (MGS), Mortar Carrier (MC), Commander's Vehicle (CV), Fire Support Vehicle (FSV), Engineer Squad Vehicle (ESV), Medical Evacuation Vehicle (MEV), Anti-Tank Guided Missile Vehicle (ATGM), and NBC Reconnaissance (NBC RV). The use of a common platform/common chassis design reduces requirements for repair parts and logistics support in the area of operations. RDTE funding will be used to integrate the mission equipment packages that make each platform unique and effective. This system supports the Interim transition path of the Transformation Campaign Plan (TCP).

FY 2000 Accomplishments

- 1281 Transformation concept proved out at Fort Lewis.
- 2015 ATEC Testing of Contract Bid Samples.
- 2338 Source Selection Evaluation Board (SSEB).
- 8378 RFP developed, milestone documentation developed, PMO support to SSEB, prepared for MS I and MS II, and program management.
- 600 Begin design refinement of Interim Armored Vehicles and prototype manufacture.

Total 14612

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FY 2001 Planned Program

- 162963 Design refinement of Interim Armored Vehicles.
- 28588 Partially Fund Systems Testing: Live Fire Test & Evaluation (LFT&E) and Initial Operational Testing and Evaluation (IOT&E).
- 4789 Government Systems Engineering and Program Management.
- 32592 Produce 2 RDT&E test articles for live-fire test and 7 Mobile Gun System (MGS) production-like prototypes.
- 13894 TOW Improved Munitions.
- 1260 GFE for test vehicles.
- 12860 Training devices.

Total 256946

FY 2002 Planned Program

- 29990 Continues vehicle design refinement and support to government testing.
- 46940 Partially fund Live Fire Test & Evaluation (LFT&E) and Initial Operational Testing and Evaluation (IOT&E).
- 9832 Government Systems Engineering and Program Management.
- 12276 Produce 3 Mobile Gun Systems (MGS)
- 420 GFE for MGS vehicles

Total 99458

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B. Other Program Funding Summary	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	To Compl	Total Cost
PA, WTCV, G85100 Interim Armored Vehicle Family	22000	928427	662595	0	0	0	0	0	0	0
PA, OPA, W61900 IAV APPLIQUE*	0	0	15059	0	0	0	0	0	0	0

*Funding summary represents a portion of the overall funding in W61900, Other Procurement, Army. (FBCB2)

C. Acquisition Strategy: In Oct 99, the Army leadership announced a vision of the future. This vision included a Brigade structure and an organization crucial to the Army's strategic responsiveness goals. The PM is taking action to achieve this vision for the Army via accelerated procurement of the family of Interim Armored Vehicles. An RFP was developed by the end of 2nd Quarter FY00 and released in Apr 00. Contractors provided bid sample hardware for evaluation during the source selection process. On 16 Nov 00, after a successful MS II DAB approval, a requirements contract was awarded to GM GDLS Defense Group, L.L.C. with delivery orders issued for integration efforts and initial production vehicles.

D. Schedule Profile	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Release of Draft Solicitation	1Q			0	0	0	0	0
Final Receipt of White Paper Comments	2Q			0	0	0	0	0
Release of Formal Request for Proposals	3Q			0	0	0	0	0
Receipt of Proposals	3Q			0	0	0	0	0
Milestone II		1Q		0	0	0	0	0
Contract Award		1Q		0	0	0	0	0
Begin Testing of Vehicles*			4Q	0	0	0	0	0
First Unit Equipped (Battalion -)*			4Q	0	0	0	0	0
Planned Initial Operational Capability (IOC)*				0	0	0	0	0
Planned Milestone III*				0	0	0	0	0

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*Reflects schedule briefed at the Milestone II in Nov 00.

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**PROJECT
C03**

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . IAV Development	Competitive-Cost Plus	GM GDLS DG L.L.C	600	162963	1Q	29990	1Q	0	0	0	0	0
b . GFE	Requisition	Various	0	1260		420	1Q	0	0	0	0	0
c . Prototype Development (10)	Competitive-Cost Plus	GM GDLS DG L.L.C	0	28643	3Q	12276	1Q	0	0	0	0	0
d . Training Devices	MIPR	STRICOM, Orlando, FL	0	12860	3Q	0		0	0	0	0	0
e . TOW Missile Modification Program	Reprogram	PM-CCAWS	0	13894		0		0	0	0	0	0
Subtotal:			600	219620		42686		0		0	0	0

Remarks: IAV development supports the following 10 vehicles: Infantry Carrier Vehicle (ICV), Reconnaissance Vehicle, Mobile Gun System, Mortar Carrier, Commander's Vehicle, Fire Support Vehicle, Engineer Squad Vehicle, Medical Evacuation Vehicle, Anti-Tank Guided Missile Vehicle, and NBC Reconnaissance Vehicle.

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II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Other Gov't Agencies	MIPR	TACOM, Warren, MI Various	3746	1789		5793		0	0	0	0	0
b . Source Selection Board			2338	0		0		0	0	0	0	0
Subtotal:			6084	1789		5793		0		0	0	0

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . System Testing	MIPR	ATEC, APG, MD/Various	2015	28588	4Q	46940	2Q	0	0	0	0	0
b . Fort Lewis Concept Prove Out	MIPR	BCT Materiel Dev Cell, Ft Lewis, WA	1281	0		0		0	0	0	0	0
c . Procure Test Vehicles	Competitive/CPAF	GM GDLS DG L.L.C.	0	3949	1Q	0		0	0	0	0	0
Subtotal:			3296	32537		46940		0		0	0	0

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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2001 Cost	FY 2001 Award Date	FY 2002 Cost	FY 2002 Award Date	FY 2003 Cost	FY 2003 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PMO	NA	TACOM, Warren, MI	2933	3000	1Q	4039	1Q	0	0	0	0	0
b . Consultant Contract PM Support	Competitive/ Various	ICI, Warren, MI	1699	0		0		0	0	0	0	0
Subtotal:			4632	3000		4039		0		0	0	0

Project Total Cost:			14612	256946		99458		0		0	0	0