

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

DATE
February 1999

BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
**0206623M Marine Corps Ground
Combat/Supporting Arms Systems**

COST (In Millions)	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
Total Program Element (PE) Cost	12744	18185	39941	35487	20911	10647	9764	10030	Continuing	Continuing
C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)	297	216	398	409	361	372	382	394	Continuing	Continuing
C1555 Light Armored Vehicle (LAV) PIP	1744	1548	11706	12556	6286	1342	1373	1411	Continuing	Continuing
C1901 Marine Corps Ground Weaponry PIP	6251	7462	24488	18695	9579	4507	3142	3290	Continuing	Continuing
C2086 Marine Enhancement Program	1684	3009	1484	1672	2639	2564	2906	2946	Continuing	Continuing
C2237 Amphibious Vehicle Test Branch	1524	1960	643	723	731	746	821	826	Continuing	Continuing
C2317 ASCIET	1154	0	0	0	0	0	0	0	0	0
C2503 Initial Issue	0	0	1222	1432	1315	1116	1140	1163	Continuing	Continuing
C2666 Automatic Target Tracker (ATT)	0	1995	0	0	0	0	0	0	0	1995
C2667 Shortstop Electronic Protection System (SEPS)	0	1995	0	0	0	0	0	0	0	1995
Quantity of RDT&E Articles										

(U) Mission Description and Budget Item Justification: This PE provides modification to Marine Corps Expeditionary Ground Force Weapon Systems to increase lethality, range survivability and operational effectiveness. It also provides for the development of AAV7A1 reliability, maintainability, operational and safety modifications, improvements in command and control in the ADMS, product improvements to the family of LAV's and the development effort for the LAV-AD variant. The AVTB provides facilities and personnel which perform a broad range of testing, repair and technical services to amphibious vehicles.

(U) Justification for Budget Activity: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing and manufacturing development for upgrade of existing operational systems.

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Budget Item Justification

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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems	PROJECT C0021
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COST (In Millions)	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
C0021 Assault Amphibious Vehicle 7A1 (AAV7A1)	297	216	398	409	361	372	382	394	Continuing	Continuing
Quantity of RDT&E Articles										

A. (U) Mission Description and Budget Item Justification:

(U) The AAV7A1 RDT&E program provides for the development, test and preparation of Engineering Change Proposals (ECPs) to improve the performance, reliability, maintainability and safety of the AAV7A1 Family of Vehicles (FOV). This program also allows for the development of installation kits for the integration of communications and navigation equipment developed for integration into the AAV7A1 FOV.

(U) FY 1998 Accomplishments:

- (U) \$ 140 Engineering Support for various ECP developments to include integration of communications and navigation improvements to AAV7A1
- (U) \$ 157 Travel in support of RAM/RS
- (U)Total \$ 297

(U) FY 1999 Planned Program:

- (U) \$ 214 Continuing providing engineering support for integration of communications and navigation improvements to AAV7A1.
- (U) \$ 2 Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.
- (U)Total \$ 216

(U) FY 2000 Planned Program:

- (U) \$ 398 Complete providing engineering support for integration of communications and navigation improvements to AAV7A1
- (U)Total \$ 398

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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems	PROJECT C0021
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B. (U) Project Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
(U) Previous President's Budget	331	273	396
(U) Adjustments to Previous President's Budget	-34	-57	+2
(U) Current Budget Submit	297	216	398

(U) Change Summary Explanation:

(U) Funding: Decrease of 34K in FY98 due to 9K SBIR tax and 25K transfer to MCOTEA to support AAV RAM/RS testing. Adjustments in FY99, and FY00 are due to revised economic and general adjustments.

(U) Schedule: N/A

(U) Technical: N/A

C. (U) Other Program Funding Summary
(APPN, BLI #, NOMEN)

	<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>	To <u>Compl</u>	Total <u>Cost</u>
(U) PMC, 202100, AAV PIP	13,684	89,553	80,714	78,439	68,487	1,555	1,499	1,566	Cont.	Cont.

(U) **Related RDT&E:** PE 0603611M (Marine Corps Assault Vehicles)

D. (U) Schedule Profile: N/A

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PE NUMBER AND TITLE
**0206623M Marine Corps Ground
Combat/Supporting Arms Systems**

PROJECT
C1555

COST (In Millions)	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
C1555 Light Armored Vehicle (LAV) PIP	1744	1548	11706	12556	6286	1342	1373	1411	Continuing	Continuing
Quantity of RDT&E Articles			17							

(U) Mission Description and Budget Item Justification: The Light Armored Vehicle Family of Vehicles (LAV FOV) consists of seven fielded LAV configurations, and one communications/intelligence-configured asset on an LAV chassis (Mobile Electronic Warfare Support System). Collectively, the LAV FOV provides a logistically self-contained, highly mobile, and lethal combined arms combat system to the Marine Air-Ground Task Force (MAGTF). These efforts will include, but not be limited to: a Service Life Extension Program (SLEP) which will ensure the LAV FOV will be capable of conducting its assigned missions by enhancing lethality and survivability, minimizing LAV operations and support costs, maximizing reliability, availability, maintainability, and durability; and ensuring high levels of fleet readiness; an Enhanced Fire Support Platform (EFSP) which will address current LAV FOV deficiencies by enhancing the capabilities of the existing LAV Mortar variant by investing in a new mortar system capable of extended range, greater lethality, and reduced call-for-fire response time; as well as improvements to the LAV Command and Control (C2) capabilities which will enhance overall Light Armored Reconnaissance (LAR) Battalion and MAGTF command and control capabilities by investing in C4I systems that will enhance communications, interoperability, and interconnectivity with the LAR Battalions and within other USMC C4I systems.

(U) FY 1998 Accomplishments:

- (U) \$ 513 Continued development, testing, and evaluation of urgent LAV reliability, availability, maintainability, durability (RAM-D), and readiness enhancements.
- (U) \$ 1231 Continued study and development of LAV Service Life Extension Program, including analysis of alternative modifications and upgrades.
- (U)Total \$ 1744

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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems	PROJECT C1555
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- (U) FY 1999 Planned Program:**
- (U) \$ 460 Complete development, testing and evaluation of urgent LAV RAM-D and readiness enhancements.
 - (U) \$ 1076 Continued study, development, and analysis of existing and other technological solutions; commence developmental and operational test planning for the LAV Service Life Extension Program.
 - (U) \$ 12 Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.
- (U)Total \$ 1548
- (U) FY 2000 Planned Program:**
- (U) \$ 4287 Development of 9 LAV SLEP operational system prototypes for developmental & operational test and evaluation of SLEP modifications.
 - (U) \$ 2080 Continue study, analysis, and development of existing and other alternative technological solutions for the LAV Service Life Extension Program.
 - (U) \$ 508 Continue and complete developmental and operational test planning for the LAV Service Life Extension Program Test Planning
 - (U) \$ 1500 Conduct research and development of command and control technology and possible upgrades under the PIP concept.
 - (U) \$ 2949 Conduct design and engineering addressing use of current 120 technology as it would apply to fire control enhancement under the PIP concept.
 - (U) \$ 382 Incorporate elements of fire control enhancements into LAV PIP masterplan.
- (U)Total \$ 11706

B. (U) <u>Project Change Summary</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
(U) Previous President's Budget	1768	1626	2687
(U) Adjustments to Previous President's Budget	-24	-78	9019
(U) Current Budget Submit	1744	1548	11706

(U) Change Summary Explanation:

(U) Funding: FY 98 and FY 99 changes are due to revised economic and general adjustments. FY 2000 increase reflects upgrades such as the LAV Service Life Extension Program.

(U) Schedule: Not Applicable.

(U) Technical: Not Applicable.

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PROJECT
C1555

C. (U) <u>Other Program Funding Summary</u> (APPN, BLI #, NOMEN)	<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>	To <u>Compl</u>	Total <u>Cost</u>
(U) PMC, 203800, LAV PIP	586	1380	1706	1734	75007	107406	122011	119604	CONT	CONT
(U) PMC, 203900, LAV (LAV AIR DEFENSE)	6541	0	0	0	0	0	0	0	0	6541

(U) **Related RDT&E:** Not applicable

D. (U) Schedule Profile

LAV SLEP

Milestone 0: 1st Qtr, FY 1998
 Milestone I: 2nd Qtr, FY 1999
 Milestone II: 1st Qtr, FY 2000
 DT / OT: 1st Qtr, FY 2001

Milestone III: 2nd Qtr, FY 2002
 Contract Award: 2nd Qtr, FY 2002
 IOC: 4th Qtr, FY 2003
 FOC: 1st Qtr, FY 2007

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1999			
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems			PROJECT C1555			
A. (U) <u>Project Cost Breakdown</u>										
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>							
Product Development	1115	779	9749							
Support Costs and Management	524	555	1167							
Test and Evaluation	105	214	790							
Total	1744	1548	11706							
B. <u>Budget Acquisition History and Planning Information</u>										
Performing Organizations										
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	Budget to Complete	Total Program
Product Development Organizations										
Dies Div, GM	C/FF	Dec 97	915	915	312	303	300	0	0	915
In-house Product Development	WR	1 st Qtr			0	512	448	1252	Continue	Continue
Other	Various	Various			9380	300	31	7947	Continue	Continue
Support and Management Organizations										
In-house Support	WR	1 st Qtr			22722	524	555	1167	Continue	Continue
Test and Evaluation Organizations										
Other (LAV Test Dir/YumaPrvGrd)	WR	Various			4337	105	214	790	Continue	Continue

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE February 1999			
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems			PROJECT C1555		
Government Furnished Property									
Contract									
Method/Type	Award or						Total		
Item	or Funding	Obligation	Delivery	Prior to				Budget to	Total
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>FY 1998</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>	<u>Program</u>
Product Development Property									
Not Applicable									
Support and Management Property									
Not Applicable									
Test and Evaluation Property									
Not Applicable									
				Total					
				Prior to				Budget to	Total
				<u>FY 1998</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				9692	1115	779	9749	Continue	Continue
Subtotal Support and Management				22722	524	555	1167	Continue	Continue
Subtotal Test and Evaluation				4337	105	214	790	Continue	Continue
Total Project				36751	1744	1548	11706	Continue	Continue

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BUDGET ACTIVITY
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PE NUMBER AND TITLE
**0206623M Marine Corps Ground
Combat/Supporting Arms Systems**

PROJECT
C1901

COST (In Millions)	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
C1901 Marine Corps Ground Weaponry PIP	6251	7462	24488	18695	9579	4507	3142	3290	Continuing	Continuing
Quantity of RDT&E Articles										

A. (U) Mission Description and Budget Item Justification:

(U) This Project develops joint and Marine Corps unique improvements to infantry weapons and artillery technology, USMC unique Amphibious Armor Systems (AAS), improvements for the M1A1 Main Battle Tank and support systems, USMC Family of Small Craft, Night Vision Equipment and monitors national and international weapons developments.

(U) FY 1998 Accomplishments:

- (U) \$ 229 Armored Vehicle Driver's Viewer Enhancer (AVDVE): Continued integrated logistics documentation and testing for the Light Armored Vehicle (LAV) /Assault Amphibious Vehicle (AAV) procurement of the AVDVE for all Marine Corps vehicles.
- (U) \$ 160 M1A1 Armor Mods: Continued joint evaluation of modifications of amphibious armor including Component Enhancements, Advanced Fire Control Systems, survivability systems, M88 Tank Retriever and AVLB upgrades, combat identification and others.
- (U) \$ 1795 Target Location Designator Hand-off System (TLDHS): Continued participation in Joint-Service, U.S. Army-led EMD development of the Lightweight Laser Designator Rangefinder (LLDR) to include system design, subsystem fabrication and integration and user evaluations. Continued to define, design and develop TLDHS-specific software application and integration with the Marine Corps Data Automated Communication Terminal (DACT) and Rugged Hand-held Computer (RHC).
- (U) \$ 469 Fire Support Mods: Continued joint participation in artillery and fire support improvement projects. Specifically, continued joint sustainment of the M198 Howitzer, to include research, development and field user evaluations of the Hydraulic Assist Kit Package and Elimination of Radioactive Light Sources (ERLS) collimeter. Continued unilateral development of USMC-unique ballistics software for the Mortar Ballistic Computer (MBC) to include initial software definition and design. Initiated Marine Corps participation in Joint-Service, U.S. Army-led development of Firefinder Radar Position Analysis System software. Monitored U.S. Army development and executed USMC-unique cost analyses of the Gun Laying and Positioning System (GLPS) and Family of Artillery Munitions.
- (U) \$ 352 Mortar Ballistic Computer (MBC): Continued unilateral development of USMC-unique ballistics software for the Mortar Ballistic Computer.

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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems	
		PROJECT C1901
• (U) \$	595	Infantry Mods: Continued joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps infantry/reconnaissance individual weapons, crew served weapons, and night vision devices. Pursue improvements in accuracy, reliability, and maintainability of the current service rifle, special operations weapons, and crew served weapons.
• (U) \$	268	Thermal Weapons Sight (TWS)[AN/PAS-13]: Continued joint participation and Marine Corps unique activities for the testing and evaluation of TWS.
• (U) \$	78	Family of Small Craft: Provided Fault Analysis and Fault Isolation (FAFI) for the Riverine Assault Craft (RAC) and the Rigid Raiding Craft (RRC) and associated equipment at Marine Corps Programs Department (MCPD), Fallbrook, CA.
• (U) \$	2105	AN/VVR-1 Laser Warning Receiver: Developed an installation kit for the AN/VVR-1 laser warning receiver and an integrated target Identification capability for the M1A1 tank.
• (U) \$	200	Marine Corps Portion of Joint Ammunition Management Standard System.
(U)Total \$	6,251	
(U) FY 1999 Planned Program:		
• (U) \$	236	Armored Vehicle Driver's Viewer Enhancer (AVDVE): Complete integrated logistics documentation and testing for the LAV/AAV procurement of the Armored Vehicle Driver's Viewer Enhancer for all USMC vehicles.
• (U) \$	253	M1A1 Armor Mods: Continue joint evaluation of modifications of amphibious armor including Component Enhancements, Advanced Fire Control Systems, survivability systems, M88 and AVLB upgrades, combat identification and others.
• (U) \$	3531	Target Location Designator Hand-off System (TLDHS): Continue participation in the joint-Service, U.S. Army-led EMD development of the LLDR hardware and software, and continue to develop TLDHS-specific software application. Continue integration of LLDR with the DACT, C2PC, and the Marine Air-Ground Task Force (MAGTF) C4I architecture. Participate in the LLDR IOT&E and demonstrate limited interoperability with artillery agencies (AFATDS) and close-air-support platforms (F-18 and AV-8B).
• (U) \$	861	Fire Support Mods: Continue joint participation in artillery and fire support improvement projects. Specifically, continue joint sustainment of the M198 Howitzer, to include development of an improved Suspension Kit and user evaluations of the Elimination of Radioactive Light Sources (ERLS) collimeter. Continue joint software modeling, design and field user evaluations of the Firefinder Radar Position Analysis System. Conduct technical, operational and cost analysis of Family of Artillery Munitions. Provide support to the Marine Corps Warfighting Lab for the development, evaluation and rapid transition of fire support initiatives.
• (U) \$	75	Mortar Ballistic Computer (MBC): Continue unilateral development of USMC-unique ballistics software for the Mortar Ballistic Computer.
• (U) \$	600	Mortar Ballistic Computer (MBC): Forward Financed efforts within this project for FY00 to continue EMD phase.
• (U) \$	1141	Infantry Wpns Mods: Continued joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps infantry/reconnaissance individual and crew served weapons. Pursue solutions to integrate weapons systems with existing and planned night vision and sighting technologies including revisions of mounts and interfaces. Begin weapon system ingetration into the Integrated Infantry Combat System (IICS) to enhance the efficiency, effectiveness and safety of the Combat System.

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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems	PROJECT C1901
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- (U) \$ 613 Thermal Weapons Sight (TWS)[AN/PAS-13]: Joint participation and Marine Corps unique activities for the testing and evaluation of TWS.
 - (U) \$ 91 Family of Small Craft: Provide Fault Analysis and Fault Isolation (FAFI) for the Riverine Assault Craft (RAC) and the Rigid Raiding Craft (RRC) and associated equipment at MCPD, Fallbrook. Engineering support for the Raw Water Cooling System (RWCS) for the RAC.
 - (U) \$ 61 Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.
- (U)Total \$ 7,462

(U) FY 2000 Planned Program:

- (U) \$ 261 M1A1 Armor Mods: Continue joint evaluation of modifications of amphibious armor including Component Enhancements, Advanced Fire Control Systems, survivability systems, M88 and AVLB upgrades, combat identification and others.
- (U) \$ 1903 Target Location Designator Hand-off System (TLDHS): Complete Joint-service, U.S. Army-led EMD development and IOT&E of the LLDR. Complete initial systems integration between the LLDR and the DACT/Command & Control Personal Computer. Continue incremental refinement, coding, evaluation and Independent Verification & Validation (IV&V) of the TLDHS-specific software application to ensure interoperability with emerging Marine Corps tactical C4I architecture and with other fire support platforms and agencies. Conduct FOT&E of artillery (Variable Message Format/Package 11) fire support functionality.
- (U) \$ 1053 Fire Support Mods: Continue joint participation in artillery and fire support improvement projects. Specifically, continue joint sustainment of the M198 Howitzer. Conduct preliminary technical, operational and cost analyses of alternative technologies to replace the AN/GVS-5 Laser Infrared Observation Set. Provide support to the Marine Corps Warfighting Lab for the development, evaluation and rapid transition of fire support initiatives.
- (U) \$ 1271 Infantry Wpns Mods: Continued joint participation and Marine Corps unique activities for evaluation of safety, lethality, and technology improvements for Marine Corps infantry/reconnaissance individual and crew served weapons. Pursue solutions to integrate weapons systems with existing and planned night vision and sighting technologies including revisions of mounts and interfaces. Begin weapon system integration into the Integrated Infantry Combat System (IICS) to enhance the efficiency, effectiveness and safety of the Combat System.
- (U) \$ 112 Thermal Weapons Sight (TWS)[AN/PAS-13]: Continued joint participation and Marine Corps unique activities for testing of the TWS.
- (U) \$ 623 Family of Small Craft: Provide Fault Analysis and Fault Isolation (FAFI) for the Riverine Assault Craft (RAC) and the Rigid Raiding Craft (RRC) and associated equipment at MCPD, Fallbrook, CA. Engineering support for the Raw Water Cooling System (RWCS) for the RAC.
- (U) \$ 450 Night Vision Mod Line: Continue joint participation and Marine Corps unique activities for evaluation of safety, lethality and technology improvements for Marine Corps Night Vision Devices. Provides for In Service Engineering Activity (ISEA) at NSWC, Crane, IN. Participate with ARMY PM-Night Vision at Ft Belvoir, VA on new enhancements for I2. Travel/TAD to support enhanced systems development and review of tests.
- (U) \$ 265 Begin in-depth requirements analysis to establish the types and amounts of future ammunition required by the USMC. Establish active monitoring of US Army artillery ammunition development programs in order to leverage off and influence Army munitions R&D effort. Allow Marine Corps Operational Test and Evaluation Activity participation in all tests to collect/analyze data to support a procurement decision.

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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems	PROJECT C1901
<ul style="list-style-type: none"> • (U) \$ 6000 AVLB Upgrade: Develop NDI integration design for mobility and hydraulic improvements to Armored Vehicle Launched Bridge. Begin fabrication of two upgraded Engineering Development Models (EDMs). • (U) \$ 7200 Improved Recovery Vehicle: Initiate preliminary design of powertrain and weight improvements to M-88 Recovery Vehicle to include NDI alternatives. • (U) \$ 5150 M1A1 Firepower Enhancements: Conduct trade studies to determine most cost effective upgrades to the tank fire control system. Initiate preliminary design of integrated NDI package to include improved thermal sight, automatic target tracker and north-finding/far target location capability. Begin fabrication/testing of prototype integrated system. • (U) \$ 200 Family of Improved Lightweight Mortars: In conjunction with Program manager for Mortars, conduct concept exploration initiatives to determine the feasibility of alternative concepts for the Pointing Device (PD) for the Mortar Fire Control System (Light) (MFCS). The PD provides precise deflection, elevation, and Global Positioning System interface for the MFCS. Will down-select to no more than two alternatives for further development. <p>(U)Total \$ 24488</p>		
B. (U) Project Change Summary		
	<u>FY 1998</u>	<u>FY 1999</u>
(U) Previous President's Budget	6313	7661
(U) Adjustments to Previous President's Budget	- 62	-199
(U) Current Budget Submit	6251	7462
(U) Change Summary Explanation:		
(U) Funding: Decreases in FY 1998 and FY 1999 are due to revised economic and general adjustments. Increase in FY 2000 is due to the addition of the Family of Small Craft Line, Night Vision Mod Line, Family of Artillery Munition, Armored Vehicle Launched Bridge, Improved Recovery Vehicle, M1A1 Firepower Enhancements, Family of Improved Mortars and revised economic and general adjustments.		
(U) Schedule: Not applicable.		
(U) Technical: Not applicable.		

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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems	PROJECT C1901
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C. (U) Other Program Funding Summary (APPN, BLI #, NOMEN)	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To	Total
									Compl	Cost
(U) PMC (BLI#206300) Modifications Kits (Tracked Vehicles)	4484	7708	22853	19301	16261	35032	65585	59391	Cont.	Cont.
(U) PMC (BLI#210500) Items Less Than \$5 Million (Tracked Vehicles)	1943	97	0	0	0	0	0	0	0	2040
(U) PMC (BLI#220900) Modifications Kits (Arty & Other)	3712	2803	3288	3947	1489	8335	9986	7352	Cont.	Cont.
(U) PMC (BLI#221000) Items Less Than \$5 Million (Other)	1653	105	0	0	0	0	0	0	0	1758
(U) PMC (BLI#468300) AN/TPQ-36 Firefinder Radar Upgrades	160	155	0	0	0	0	0	0	0	34355
(U) PMC (BLI#493000) Night Vision Equipment	6842	33586	9032	17761	24948	27888	40078	2267	Cont.	Cont.
(U) PMC (BLI#473300) Fire Support Systems	0	0	0	12519	21678	20388	17319	0	0	71904
(U) PMC (BLI#643400) Amphibious Raid Equipment	0	3714	0	0	0	0	0	0	0	3714
(U) PMC (BLI#233400) Modular Weapon System	0	0	0	16146	0	0	0	0	0	16146
(U) PMC (BLI#222000) Weapons and Combat Vehicles	0	0	323	421	256	308	319	326	Cont.	Cont.
(U) PMC (BLI#462000) Items Less Than \$5M (Communications and Electronics)	0	0	10303	8439	6932	10390	9500	5577	Cont.	Cont.
(U) PMC (BLI#667000) Items Less Than \$5M	0	0	9102	5671	9003	8220	8431	6351	Cont.	Cont.

(U) Related RDT&E

(U) All Ground Weapons and Ground Ammunition Systems: Army, Navy, Air Force, Coast Guard, and Special Operations Command.

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PE NUMBER AND TITLE
0206623M Marine Corps Ground
Combat/Supporting Arms Systems

PROJECT
C1901

D. (U) Schedule Profile:

AVDVE

ID	Task Name	1998				1999				2000				2001				2002				2003	
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
1	MS-III	2/17																					
2	USMC IOT&E	■																					
3	PRODUCTION CONTRACT AWARD (CECOM)	◆ 7/30																					
4	USMC LIMITED PROCUREMENT MCPDM	◆ 10/30																					
5	OBLIGATE USMC FY-99 BUY (236)	◆ 1/27																					
6	USMC FOT&E	■																					
7	OT REPORT																						
8	USMC FULL PROCUREMENT MCPDM	◆ 7/5																					
9	PRODUCTION/FIELDING	▬																					
10	IOC	◆ 9/1																					
11	FOC																						

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

DATE **February 1999**

BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
**0206623M Marine Corps Ground
Combat/Supporting Arms Systems**

PROJECT
C1901

MORTAR BALLISTIC COMPUTER (MBC)

Task Name	Finish	1999				2000				2001				2002				2003				2004				2005				
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
MNS	Tue 10/5/93																													
MS 0	Mon 5/23/94																													
RAA Study	Fri 5/14/99		■	■	■	■																								
ORD CH 1	Tue 6/15/99			⊗																										
MS I/III	Mon 7/12/99			◆	7/12																									
Contract Award	Wed 9/1/99			■																										
S/W Conversion	Fri 6/30/00				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
DT	Fri 10/13/00									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
H/W Porting	Thu 3/1/01																													
OT	Tue 5/1/01																													
S/W - H/W INTEGRATION	Fri 8/30/02																													
PRODUCTION	Fri 10/31/03																													
IOC	Wed 1/1/03																													
FOC	Mon 11/3/03																													

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

DATE February 1999

BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
0206623M Marine Corps Ground
Combat/Supporting Arms Systems

PROJECT
C1901

T H E R M A L W E A P O N S S I G H T

	96		1997				1998				1999				2000				2001				2002				2003			
	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				
Army LRIP	██████████		██████████																											
USMC MS 0	◆																													
Change 1 to O&O		◆																												
ARMY OT			██████████																											
Develop/Staff LAP							██████████																							
Publish LAP							██████████																							
Develop LRFS			◆																											
Revise LRFS											◆																			
Update HARDMAN							██████████																							
Army MS III (LRIP/Bridge)							◆																							
OMNIBUS Contract							██████████				██████████				██████████				██████████				██████████							
Develop/Staff ULSS											██████████																			
OT III (USMC OT)											██████████																			
USMC MS I/III															◆															
Contract Award																			◆											

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

DATE February 1999

BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
0206623M Marine Corps Ground
Combat/Supporting Arms Systems

PROJECT
C1901

TL DHS

ID	Task Name	1996			1997			1998			1999			2000			2001			2002			2003			2004			20		
		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	1	2	
1	Milestone I/II				▲																										
2	EMD Contract Award				▲																										
3	Engineering & Manufacturing Development				▲																										
4	System Development LLDR				▲							▲																			
5	System Development TL DHS				▲																										
6	CDR										▲																				
7	Test Article Delivery										▲	▲																			
8	LMMD										▲																				
9	Test Phase										▲																				
10	DT Testing (Joint, followed by TL DHS unique)										▲	▲																			
11	LLDR Joint Service IOT&E											▲	▲																		
12	TL DHS Unique OT											▲																			
13	FOT&E Artillery (VMF)														▲	▲															
14	FOT&E CAS (JV MF)																		▲	▲											
15	FOT&E Naval Gunfire																						▲	▲							
16	Milestone III (Base System)														▲	▲															
17	USMC Production Decision														▲	▲															

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Budget Item Justification

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DATE February 1999

BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
0206623M Marine Corps Ground
Combat/Supporting Arms Systems

PROJECT
C1901

MIA1 FIREPOWER ENJANCEMENT

ID	Task Name	2000				2001				2002				2003				2004			
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
1	MSI/II			◆ 6/1																	
2	ENGINEERING AND MANUFACTURING DEVELOPMENT	▶																			
3	EMD RFP			◆ 6/8																	
4	EMD CONTRACT AWARD				◆ 11/1																
5	PRELIMINARY DESIGN																				
6	FABRICATE PROTOTYPES																				
7	PROTOTYPE TESTING																				
8	FINAL DESIGN																				
9	FABRICATE EDMs																				
10	DT/OT																				
11	OT REPORT																				
12	MS III																			◆ 8/28	
13	PRODUCTION/FIELDING	▶																			
14	PRODUCTION RFP																			◆ 5/5	
15	PROD CONTRACT AWARD																			◆ 10/31	
16	PRODUCTION																				
17	FIELDING																				
18	IOC																				
19	FOC																				

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Budget Item Justification

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

DATE
February 1999

BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
**0206623M Marine Corps Ground
Combat/Supporting Arms Systems**

PROJECT
C1901

A. (U) Project Cost Breakdown

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
Systems Engineering & Development	5288	5890	23030
Program Management and Support	550	580	830
Test and Evaluation	413	992	628
Total	6251	7462	24488

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	FY 1998	FY 1999	FY 2000	Budget to Complete	Total Program
Product Development Organizations										
Acquisition	WR/RCP	1 st Qtr			3763	225	240	310	CONT.	CONT.
Logistics Support, Dumfries, VA										
NSWC, Crane, IN	WR/RCP	1 st Qtr			1144	255	270	190	CONT.	CONT.
AMCOM, Huntsville, AL	MIPR	1 st Qtr			3441	410	425	340	CONT.	CONT.
NSWC, Dahlgren, VA	WR/RCP	1 st Qtr			3300	275	300	300	CONT.	CONT.
MCPD, Fall Brook, CA	WR/RCP	1 st Qtr			228	375	380	580	CONT.	CONT.
NSWC, Indian Head, MD	WR/RCP	1 st Qtr			0	425	475	410	CONT.	CONT.
BENET LABS, Albany NY	MIPR	1 st Qtr			37	148	170	120	CONT.	CONT.
PM NVRSTA, Ft Belvoir, VA	MIPR	1 st Qtr			0	1190	1100	490	CONT.	CONT.

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Budget Item Justification

(Exhibit R-2, Page 21 of 39)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE
February 1999

BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT	
7 - Operational System Development					0206623M Marine Corps Ground Combat/Supporting Arms Systems				C1901	
U.S. Army	MIPR	1 st Qtr			0	290	750	310	CONT.	CONT.
CECOM, NJ										
Rock Island Arsenal, IL	MIPR	1st Qtr			0	125	115	120	CONT.	CONT.
MCTSSA, Camp Pendleton, CA	WR/RCP	1 st Qtr			0	1018	1255	953	CONT.	CONT.
MCCDC, Quantico, VA	WR	1 st Qtr			3693	275	290	325	CONT.	CONT.
ARDEC	MIPR	1 st Qtr			0	0	0	125	CONT.	CONT.
TBD (AVLB)	Comp/CPAF	Nov 99	6925	6925	0	0	0	5925	1000	6925
Benet Labs Albany, NY (AVLB)	MIPR	Various	100	100	0	0	0	50	50	100
TBD (IRV)	Comp/CPAF	Nov 99	15200	15200	0	0	0	7100	8100	15200
Benet Labs Albany, NY (IRV)	MIPR	Various	150	150	0	0	0	50	100	150
General Dynamics Land Systems, Warren MI (M1A1 Firepower)	Comp/CPAF	Nov 99	10745	10745	0	0	0	4075	6670	10745
Benet Labs Albany, NY (M1A1 Firepower)	MIPR	Various	2450	2450	0	0	0	1000	1450	2450
PM Mortars (Ktr TBD)	FFP	TBD	580	580	0	0	0	190	390	580
Misc	Various	Various			2865	277	120	67	CONT.	CONT.
Total Product Development					18471	5288	5890	23030		

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Budget Item Justification

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems				PROJECT C1901	
Support and Management Organizations										
Aquisition	WR/RCP	Various			19486	550	580	640	CONT.	CONT.
Logistics Support, Dumfries, VA										
MCCDC	WR	1 st Qtr			0	0	0	30	CONT.	CONT.
Aquisition	RCP	Various	50	50	0	0	0	25	25	50
Logistics Support, Dumfries, VA (AVLB)										
Aquisition	RCP	Various	150	150	0	0	0	50	100	150
Logistics Support, Dumfries, VA (IRV)										
Aquisition	RCP	Various	300	300	0	0	0	75	225	300
Logistics Support, Dumfries, VA (M1A1 Firepower)										
ALS (Mortars)	RCP	TBD	20	20	0	0	0	10	10	20
Total Support and Management					19486	550	580	830	CONT.	CONT.
Test and Evaluation Organizations										
AMCOM, Huntsville, AL	MIPR	1 st Qtr			5160	150	0	0	CONT.	CONT.
CECOM, New Jersey	MIPR	1 st Qtr			0	150	0	0	CONT.	CONT.
MCCDC, Quantico, VA	WR/RCP	1 st Qtr			5540	20	700	280	CONT.	CONT.
R-1 Line Item 170								Budget Item Justification		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems				PROJECT C1901	
MCPD, Fallbrook, CA	WR/RCP	1 st Qtr		341	0	0	18	CONT.	CONT.
NSWC , Dahlgren, VA	WR/RCP	1 st Qtr		4950	35	150	155	CONT.	CONT.
NSWC, Crane, IN	WR/RCP	1 st Qtr		1717	50	75	125	CONT.	CONT.
PM NVRSTA, Ft Belvoir, VA	MIPR	1 st Qtr		0	0	50	0	CONT.	CONT.
MCOTEA, Quantico, VA				0	0	0	50	CONT.	CONT.
MCOTEA, Quantico, VA (AVLB)	WR		1075	1075	0	0	0	1075	1075
Misc	Various	Various		4598	8	17	0	CONT.	CONT.
Total Test & Eval				22306	413	992	628	CONT.	CONT.
Government Furnished Property N/A									
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1998	FY 1998	FY 1999	FY 2000	Budget to Complete	Total Program
Product Development Property									
Support and Management Property									
Test and Evaluation Property									

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Budget Item Justification

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems	PROJECT C1901
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	Total Prior to <u>FY 1998</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	Budget to <u>Complete</u>	Total <u>Program</u>
Subtotal Product Development	18471	5288	5890	23030	Con't	Con't
Subtotal Support and Management	19486	550	580	830	Con't	Con't
Subtotal Test and Evaluation	22306	413	992	628	Con't	Con't
Total Project	60263	6251	7462	24488	Con't	Con't

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Budget Item Justification

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

DATE **February 1999**

BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
**0206623M Marine Corps Ground
Combat/Supporting Arms Systems**

PROJECT
C2086

COST (In Millions)	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
C2086 Marine Enhancement Program	1684	3009	1484	1672	2639	2564	2906	2946	Continuing	Continuing
Quantity of RDT&E Articles										

A. (U) Mission Description and Budget Item Justification:

(U) This program was formerly titled Soldier/Marine Enhancement. MEP provides Research, Development, Test and Evaluation funding for low visibility, low cost items. It focuses on items of equipment which will benefit the individual Marine by reducing the load, increasing survivability, enhancing safety and improving combat effectiveness. The emphasis of the program is on non-developmental/commercially available items which can be quickly evaluated and fielded. This program is coordinated with the Army's Soldier Enhancement Program and the Special Operations Command.

(U) FY 1998 Accomplishments:

- (U) \$ 472 Continued to explore Non-Developmental Item (NDI) equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
 - (U) \$ 450 Continued to explore clothing and individual equipment NDI categories.
 - (U) \$ 355 Continued to explore ground weapons, communications and command and control equipment NDI categories.
 - (U) \$ 427 Explored initial issue clothing and individual equipment categories.
- (U)Total \$ 1,684

(U) FY 1999 Planned Program:

- (U) \$ 510 Continue to explore NDI equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
 - (U) \$ 518 Continue to explore clothing and individual equipment NDI categories.
 - (U) \$ 509 Continue to explore ground weapons, communications and command and control equipment NDI categories.
 - (U) \$ 1437 Explore initial issue clothing and individual equipment categories.
 - (U) \$ 35 Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.
- (U)Total \$ 3,009

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Budget Item Justification

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

DATE **February 1999**

BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
**0206623M Marine Corps Ground
Combat/Supporting Arms Systems**

PROJECT
C2086

(U) FY 2000 Planned Program:

- (U) \$ 505 Continue to explore NDI equipment that will improve the combat effectiveness and enhance safety and survivability of the Individual Marine.
 - (U) \$ 468 Continue to explore clothing and individual equipment NDI categories.
 - (U) \$ 511 Continue to explore ground weapons, communications and command and control equipment NDI categories.
- (U) Total \$ 1,484

B. (U) Project Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
(U) Previous President's Budget	1766	2399	3174
(U) Adjustments to Previous President's Budget	-82	+610	-1690
(U) Current Budget Submit	1684	3009	1484

(U) Change Summary Explanation:

(U) Funding: FY 1998 decrease of \$82K is due to revised economic and general adjustments. FY 1999 increase of \$610 is due to an internal realignment within this PE. Decrease in FY 00 is due to the split of Initial Issue funding to its own project and revised economic and general adjustments.

(U) Schedule: N/A

(U) Technical: N/A

C. (U) Other Program Funding Summary
(APPN, BLI #, NOMEN)

	<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</u>	<u>Total</u>
									<u>Compl</u>	<u>Cost</u>
(U) PMC (BLI #221100) MEP	869	2070	2956	6505	2251	4231	4131	4200	Cont.	Cont.
(U) O&M Initial Issue	24959	25659	26376	27114	27872	28655			Cont.	Cont.

(U) Related RDT&E: PE 0604713A (Combat Feeding, Clothing and Equipment)

D. (U) Schedule Profile: N/A

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE
February 1999

BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
**0206623M Marine Corps Ground
Combat/Supporting Arms Systems**

PROJECT
C2086

A. (U) Project Cost Breakdown

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
Systems Engineering	118	318	137
Development Test and Evaluation	346	526	278
Program Management and Support	287	453	296
Integrated Logistics Support	357	519	303
Test/Evaluations	155	452	142
Government Engineering Support	272	504	214
Miscellaneous	149	237	114
Total	1684	3009	1484

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	FY 1998	FY 1999	FY 2000	Budget to Complete	Total Program
Product Development Organizations										
Lexington – Bluegrass	WR	1 st Qtr			2316	41	35	42	Con't	Cont.
Lexington, KY NOC PacDiv Fallbrook, CA	WR	1 st Qtr			132	41	86	30	Con't	Con't
MCTSSA CamPen, CA	WR/RCP	1 st Qtr			598	6	22	4	Con't	Con't
NCTRF, Aberdeen, MD	WR/RCP	1 st Qtr			276	23	25	21	Con't	Con't
NATICK, Natick, MA	MIPR	2 nd Qtr			1216	82	215	61	Con't	Con't

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Budget Item Justification

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE
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BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT			
7 - Operational System Development	0206623M Marine Corps Ground Combat/Supporting Arms Systems				C2086			
ARL/APG	MIPR	1 st Qtr	238	9	25	7	Con't	Con't
Aberdeen, MD								
PM, Mortar, Ft. Monmouth, NJ	MIPR	1 st Qtr	544	0	0	0	Con't	Con't
PPSC, Philadelphia, PA	MIPR	3 rd Qtr	13	0	0	0	Con't	Con't
MCAGCC, Twenty-Nine Palms, CA	WR/RCP	1 st Qtr	104	0	0	0	Con't	Con't
NSMA	MIPR	1 st Qtr	157	18	10	14	Con't	Con't
Washington, DC								
TACOM, Warran, MI	MIPR	1 st Qtr	55	12	118	10	Con't	Con't
NHRC, Crane, IN	MIPR	2 nd Qtr	365	24	33	18	Con't	Con't
2 nd MARDIV	WR	1 st Qtr	64	2	5	2	Con't	Con't
CamLej, NC								
NCCOSC, San Diego, CA	WR	1 st Qtr	193	24	39	16	Con't	Con't
NCSS, Pamama City, FL	WR	1 st Qtr	1866	14	10	8	Con't	Con't
NSWC, Crane, IN	WR	1 st Qtr	1919	81	273	59	Con't	Con't
NAWC Air Div	WR	1 st Qtr	199	57	56	42	Con't	Con't
Patuxent River, MD								
II MEF, CamLej, NC	WR	1 st Qtr	75	5	0	5	Con't	Con't
NFESC, San Diego, CA	MIPR	2 nd Qtr	344	0	0	0	Con't	Con't
NSWC IHD, Indian Head, MD	WR	4 th Qtr	164	0	0	0	Con't	Con't

Support and Management Organizations

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Budget Item Justification

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE
February 1999

BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT	
7 - Operational System Development	0206623M Marine Corps Ground Combat/Supporting Arms Systems						C2086	
MCCDC, Quantico, VA	WR	1 st Qtr	1991	48	192	37	Con't	Con't
MISC	Various	Various	4379	55	60	41	Con't	Con't
Test and Evaluation Organizations								
MCTSSA, CamPen, CA	WR/RCP	1 st Qtr	1774	44	47	24	Conb't	Con't
NCTRF, Aberdeen, MD	WR/RCP	1 st Qtr	846	5	3	5	Con't	Con't
NATICK, Natick, MA	MIPR	2 nd Qtr	2243	227	550	127	Con't	Con't
ARL/APG, Aberdeen, MD	MIPR	1 st Qtr	787	14	19	12	Con't	Con't
PM, Mortors, Ft. Monmouth, NJ	MIPR	1 st Qtr	1803	0	0	0	Con't	Con't
PPSC, Philadelphia, PA	MIPR	3 rd Qtr	42	4	0	4	Con't	Con't
MCAGCC Twenty-Nine Palms, CA	WR/RCP	1 st Qtr	340	11	18	8	Con't	Con't
NSMA, Washington, DC	MIPR	1 st Qtr	507	32	43	21	Con't	Con't
TEXCOM, Warran, MI	MIPR	1 st Qtr	178	21	25	21	Con't	Con't
NHRC, Crane, IN	MIPR	2 nd Qtr	1257	216	380	152	Con't	Con't
2 nd MarDiv, CamLej, NC	WR	1 st Qtr	212	12	10	12	Con't	Con't
NCCOSC, San Diego, CA	WR	1 st Qtr	638	36	31	36	Con't	Con't
NCSS, Panama City, FL	WR	1 st Qtr	6177	15	15	15	Con't	Con't

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Budget Item Justification

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1999			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
7 - Operational System Development				0206623M Marine Corps Ground Combat/Supporting Arms Systems				C2086		
NSWC, Crane, IN	WR	1 st Qtr		6299	261	410	261	Con't	Con't	
NAWC Air Div, Patuxent River, MD	WR	1 st Qtr		625	163	154	163	Con't	Con't	
II MEF CamLej, NC	WR	1 st Qtr		5506	0	0	0	Con't	Con't	
NFESC, San Diego CA	MIPR	2 nd Qtr		1139	0	0	0	Con't	Con't	
NSWC IHD, Indian Head, MD	WR	4 th Qtr		546	10	10	10	Con't	Con't	
MISC	Various	Various		8780	71	90	196	Con't	Con't	
Government Furnished Property										
Contract										
Item	Method/Type	Award or	Delivery	Total				Budget to	Total	
<u>Description</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Date</u>	<u>Prior to</u>	<u>FY 1998</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>	<u>Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>FY 1998</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>	<u>Program</u>	
Product Development Property										
Not Applicable										
Support and Management Property										
Test and Evaluation Property										
				Total				Budget to	Total	
				Prior to				Complete	Program	
				<u>FY 1998</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>Complete</u>	<u>Program</u>	
Subtotal Product Development				10838	439	952	339	Con't	Con't	
Subtotal Support and Management				6370	103	252	78	Con't	Con't	
Subtotal Test and Evaluation				39699	1142	1805	1067	Con't	Con't	
Total Project				56907	1684	3009	1484	Con't	Con't	

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Budget Item Justification

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BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
**0206623M Marine Corps Ground
Combat/Supporting Arms Systems**

PROJECT
C2237

COST (In Millions)	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
C2237 Amphibious Vehicle Test Branch	1524	1960	643	723	731	746	821	826	Continuing	Continuing
Quantity of RDT&E Articles										

A. (U) Mission Description and Budget Item Justification:

(U) The Amphibious Vehicle Test Branch (AVTB) is a one-of-a-kind Department of Defense test facility for amphibious vehicles and supports the requirements of all Services. The AVTB conducts developmental, combined developmental/operational, and follow-on testing and evaluation of production hardware. It also conducts Product Assurance Testing and Substitute or alternative parts and material testing for amphibious vehicles and associated equipment. Because of its year-round temperate climate, diverse terrain, and 17 miles of coastline, the AVTB is ideal for amphibious vehicle, as well as ship related testing. The AVTB is in close proximity to San Clemente island which is used frequently for live fire sea-to-shore testing and high-speed water testing. The AVTB is committed to testing product improvement programs, engineering change proposal design changes, and field change requests.

U) FY 1998 Accomplishments:

- (U) \$ 174 Program support, supplies, and services at AVTB test site to support scheduled Assault Amphibious Vehicle 7A1 (AAV7A1) "rebuild to standard" testing, Advanced Amphibious Assault Vehicle (AAAV) Developmental Testing as well as other Marine Corps mobility and mine warfare programs. Program on-site support, supplies, and services to support Naval Sea Systems Command and Naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provided services and support to the Department of Defense Common Test and Training Range Architecture workshops. These funds provided organic supply support including management operations, general accounting, and a maintenance float of equipment. Provided intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.
- (U) \$ 99 Provided funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California and off-station units for electricity, heating and other power charges; long distance telephone support; and calibration of laboratory test equipment and maintenance.

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Budget Item Justification

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

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BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
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PROJECT
C2237

- (U) \$ 1251 Provided AVTB personnel civilian salaries to support scheduled AAV7A1 and AAV Developmental Testing. Planned and conducted Developmental Tests and report results, identifying any unresolved test issues in accordance with approved test plans and procedures. Supported Marine Corps Operational Test and Evaluation Activity (MCOTEA) in AAV, Reliability, Availability, Maintainability/Rebuild to Standards (RAM/RS), Initial Operational Test & Evaluation (IOT&E). Prepared analysis of field-reported problems as received. Provided recommendations pertaining to design requirements which affect both operational effectiveness and operation suitability. Performed all echelons of maintenance on developmental items, including all on-hand assets of assault amphibious vehicles, within the capabilities of on-hand personnel, tools, test, and measuring equipment and facilities. Provided technical assistance and recommendations in the test of substitute or alternate parts and materials. Prepared technical analysis of proposed product improvements as requested. Prepared analysis of proposed engineering changes. Conducted hardware testing and evaluation of design changes, including verification of both the design and the technical data in accordance with approved test plans and procedures. Provided technical assistance in writing and revision of Technical Manuals. Provided technical reviews and recommendations regarding proposed Modification, Technical, Retrofit Instructions, and Retrofit Kit Hardware. Provided Testing expertise to Program Managers to assist in program acquisition strategy development. Provided Technical reviews and recommendation on Test and Evaluation Master Plans (TEMP's) and Detailed Test Plans for Program Managers. Provided technical input as the Marine Corps Developmental Testing representative to the Department of Defense Common Test and Training Range Architecture workshops. Conducted study to improve business processes to increase efficiencies and service.

(U)Total \$ 1,524

(U) FY 1999 Planned Programs:

- (U) \$ 483 Maintenance, refurbishment, upgrade, and replacement of test equipment and instrumentation needed to provide program support, supplies, and services at AVTB test site to support scheduled Assault Amphibious Vehicle 7A1 (AAV7A1) "rebuild to standard": testing, Advanced Amphibious Assault Vehicle (AAAV) Development Testing as well as other Marine Corps mobility and mine warfare programs. Program on-site support, supplies, and services to support Naval Sea System Command and naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provide services and support to the Department of Defense Common test and Training Range Architecture workshops. These funds provide organic supply support including management operations, general accounting, and a maintenance float of equipment. Provide intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.
- (U) \$ 151 Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California for electricity, heating, and other power charges; and long distance telephone support. Provided funding for calibration of laboratory test equipment and maintenance services provided by Marine Corps Logistics Base (MCLB) Barstow and 1 Force Service Support Group (FSSG).

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

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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems	PROJECT C2237
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- (U) \$ 1319 Provide AVTB personnel civilian salaries to support scheduled AAV7A1 and AAAV Developmental Testing. Plan and conduct Developmental Tests and report results, identifying any unresolved test issues in accordance with approved test plans and procedures. Prepare analysis of field-reported problems as received. Provide recommendations pertaining to design requirements which affect both operational effectiveness and operation suitability. Perform all echelons of maintenance on developmental items, including all on-hand assets of assault amphibious vehicles, within the capabilities of on-hand personnel, tools, test, and measuring equipment and facilities. Provided technical assistance and recommendations in the test of substitute or alternate parts and materials. Prepare technical analysis of proposed product improvements as required. Prepared analysis of proposed engineering changes. Conduct hardware testing and evaluation of design changes, including verification of both the design and the technical data in accordance with approved test plans and procedures. Provide technical assistance in writing and revision of Technical Manuals. Provide technical reviews and recommendations regarding proposed Modification, Technical, Retrofit Instructions, and Retrofit Kit Hardware. Provide Testing expertise to Program Managers to assist in program acquisition strategy development. Provide Technical reviews and recommendation on Test and Evaluation Master Plans (TEMP'S) and Detailed Test Plans for Program Managers. Provide technical input as the Marine Corps Developmental Testing representative to the Department of Defense Common Test and Training Range Architecture workshops.
- (U) \$ 7 Portion of extramural program reserved for Small Business Innovation Research assessment in accordance with 15 USC 638.
- (U)Total \$ 1,960

(U) FY 2000 Planned Program:

- (U) \$ 490 Maintenance, refurbishment, upgrade, and replacement of test equipment and instrumentation needed to provide program support, supplies, and services at AVTB test site to support scheduled Assault Amphibious Vehicle 7A1 (AAV7A1) "rebuild to standard" testing, Advanced Assault Amphibious Vehicle (AAAV) Development Testing as well as other Marine Corps mobility and mine warfare programs. Program on-site support, supplies, and services to support Naval Sea System Command and Naval Mine Warfare Command for development testing of Navy mine countermeasures system. Provide services and support to the Department of Defense Common Test and Training Range Architecture workshops. These funds provide organic supply support including management operations, general accounting, and a maintenance float of equipment. Provide intermediate maintenance (third echelon) of organic non-developmental communication electronic and ordnance equipment.
- (U) \$ 153 Provide funding for necessary services provided by Marine Corps Base, Camp Pendleton (MCB CAMPEN), California for electricity, heating, and other power charges; and long distance telephone support. Provide funding for calibration of laboratory test equipment and maintenance services provided by MCLB Barstow and 1FSSG.
-
- (U)Total \$ 643

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BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
**0206623M Marine Corps Ground
Combat/Supporting Arms Systems**

PROJECT
C2237

B. (U) Project Change Summary

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
(U) Previous President's Budget	1596	1965	2015
(U) Adjustments to Previous President's Budget	-72	-5	-1372
(U) Current Budget Submit	1524	1960	643

(U) Change Summary Explanation:

(U) Funding: FY 1998 decrease of \$72K reflects minor program changes. FY 1999 decrease is due to revised economic and general adjustments. Decrease in FY00 is due to transfer of AVTB civilian salaries to the O&M, MC appropriation and revised economic and general adjustments.

(U) Schedule: N/A

(U) Technical: N/A

C. (U) Other Program Funding Summary
(APPN, BLI #, NOMEN)

	<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>	To	Total
									<u>Compl</u>	<u>Cost</u>

(U) Not Applicable

(U) **Related RDT&E: PE 0603611M (Marine Corps Assault Vehicles)**

D. (U) Schedule Profile

Testing conducted at AVTB includes all aspects of Marine Corps Assault Amphibious Vehicles. Testing planned for FY 98 and beyond includes MK 155 Minefield Breaching System, NBC overpressure system, RAM/RS (Reliability, Availability and Maintainability/Rebuild to Standard) Proof of Principle Developmental Testing, Operational Testing Support and Production Assurance testing; Engineering Change Proposals (ECP) as required; combined Recoil Booster (CRB) for adoption of Multiple Integrated Laser Engagement System (MILES) for AAV use; support for Extended Littoral Battlefield Advanced Concept Technology Demonstration; C4I integration support for AAV Communications 7 RAM/RS. AVTB will also support the testing of the Advanced Amphibious Assault Vehicle (AAAV) as directed, by DRPM AAAV, during the Program Definition & Risk Reduction phase of the AAAV Program Development.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems					PROJECT C2503	
<i>COST (In Millions)</i>	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
C2503 Initial Issue	0	0	1222	1432	1315	1116	1140	1163	Continuing	Continuing
Quantity of RDT&E Articles										
<p>A. (U) <u>Mission Description and Budget Item Justification:</u> This program was formerly reported under C2086, Marine Enhancement Program. The Initial Issue program provides Research, Development, Test and Evaluation of low visibility, low cost items with emphasis on non-developmental/commercial available items. Items approved for procurement will transition into the O&M Initial Issue program. Focus is on clothing and equipment items (i.e. improved Jungle and Desert Boots, Light Weight Helmet, combat boots, sleeping bags) which will benefit the individual Marine by reducing the load with less bulky, lightweight, comfortable equipment, increasing survivability and improving combat effectiveness. Initial Issue continues to explore the spectrum of technologies commercially available that can provide enhancement in individual protection, tactical mobility and application of state-of-the-art technologies through studies and testing.</p> <p>(U) FY 1998 Accomplishments: This program is contained in Project C2086 in this PE.</p> <p>(U) FY 1999 Planned Program: This program is contained in Project C2086 in this PE.</p> <p>(U) FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • (U) \$ 1022 Explore and evaluate across a broad spectrum of commercially available technologies that can be incorporated into existing or new designs of individual clothing and equipment in an effort to reduce weight, increase survivability, increase lethality, improve safety, increase mobility, and improve combat performance of the individual Marine. (Marine load system product improvement, redesign, conduct testing and evaluation; improve jungle and desert boot; conduct boot outsole traction study to optimize performance of boot soles for traction, durability, and resale-ability; Body armor and light weight helmet ballistic testing to include cadaver testing and analysis of ballistic effects of shock forces of the torso, neck and spine; Review uniform sizing integration (less sizes covering same population with potential cost savings associated with stock and storage). Provide recommendation to uniform board on Marine uniform product improvements in an effort to reduce cost, utilize commercial manufacturing techniques, improve durability, and retain sharp appearance. <p>(U) \$ 200 Develop prototype for Multipurpose Health Service Facility for surgery, dental, pharmacy functions, etc.</p> <p>(U)Total \$ 1,222</p>										
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1999						
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0206623M Marine Corps Ground Combat/Supporting Arms Systems			PROJECT C2503						
B. (U) <u>Project Change Summary</u>				<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>							
(U) Previous President's Budget				0	0	0							
(U) Adjustments to Previous President's Budget				0	0	1222							
(U) Current Budget Submit				0	0	1222							
(U) Change Summary Explanation:													
(U) Funding: FY98 and FY99 program funding contained in Project C2086 in this PE. Increase in FY00 is due to the split of Initial Issue funding from Project C2086 into this Project and revised economic and general adjustments.													
(U) Schedule: N/A													
(U) Technical: N/A													
C. (U) <u>Other Program Funding Summary</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>	<u>To</u>	<u>Total</u>
(APPN, BLI #, NOMEN)													
(U) PMC Line (BLI # 652200) Field Med Equip								2765	9202	6022			
(U) O&M Initial Issue				44279	65593	26693	32173	27662	28188	28808	29442	Cont	Cont
(U) Related RDT&E													
D. (U) <u>Schedule Profile:</u> N/A													

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Budget Item Justification

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

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BUDGET ACTIVITY
7 - Operational System Development

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0206623M Marine Corps Ground
Combat/Supporting Arms Systems

PROJECT
C2503

A. (U) Project Cost Breakdown

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>
Product Development	0	0	927
Product Test	0	0	295
Total	0	0	1222

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	FY 1998	FY 1999	FY 2000	Budget to Complete	Total Program
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Product Development Organizations

NATICK	MIPR	Oct 99			0	0	0	727	CONT	CONT
USAMRA	MIPR	Oct 99						200	CONT	CONT

Support and Management Organizations

Test and Evaluation Organizations

NATICK	MIPR	Oct 99			0	0	0	295	CONT	CONT
AMED	MIPR	Oct 99			0	0	0	0	CONT	CONT

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1998	FY 1998	FY 1999	FY 2000	Budget to Complete	Total Program
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Product Development Property

Support and Management Property

Test and Evaluation Property

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Budget Item Justification

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE
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BUDGET ACTIVITY
7 - Operational System Development

PE NUMBER AND TITLE
**0206623M Marine Corps Ground
Combat/Supporting Arms Systems**

PROJECT
C2503

	Total Prior to <u>FY 1998</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	Budget to <u>Complete</u>	Total <u>Program</u>
Subtotal Product Development	0	0	0	927	CONT	CONT
Subtotal Support and Management	0	0	0	0	0	0
Subtotal Test and Evaluation	0	0	0	295	CONT	CONT
Total Project	0	0	0	1222	CONT	CONT

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Budget Item Justification