FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 3 PROGRAM ELEMENT: 0603640M
PROGRAM ELEMENT TITLE: Marine Corps Advanced Technology Demonstrations

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C2297 Marine Corps Warfighting Lab-Core	35,064	42,545	33,050	33,563	34,893	38,428	36,506	CONT.	CONT.
C2996 Remote Precision Gun Aiming Platform	971	0	0	0	0	0	0	0	971
R2362 Extending the Littoral Battlespace	8,293	948	951	0	0	0	0	0	44,283
R2223 Marine Corps ATD	11,680	17,061	17,605	19,099	22,266	23,573	24,417	CONT.	CONT.
R2295 California Central Coast Research Partnership (C3RP) Initiative	1,448	1,289	0	0	0	0	0	0	2,737
TOTAL	57,456	61,843	51,606	52,662	57,159	62,001	60,923	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: As the land warfare component of Naval Expeditionary Forces, the Marine Corps has unique and technologically stressing requirements resulting from its amphibious mission, Marine Air-Ground Task Force (MAGTF) organizational structure, reliance on maneuver, logistic sustainability, and intensive tempo of operations in diverse environments. Critical Marine Corps requirements being addressed in this program element (PE) are: Mobility; Weapons; Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR); Logistics; and Training and Education. These are ongoing efforts to develop and demonstrate advanced technologies and system concepts in an operational environment. Multiple transitions into the Sub-system/Component Advanced Development phase are planned, as well as fieldable prototyping to reduce risk in System Concept Development and Demonstration. Joint service efforts are in line with Defense Technology Objectives (DTOs) and Joint Warfighting Objectives (JWOs). In addition, Marine Corps warfighting experimentation in conceptual operational assessment of emerging technologies is funded. This PE also provides Extended Littoral Battlespace efforts in the area of command, control, communications, computers and intelligence, and fires and targeting. Efforts focus on connectivity between MAGTF and Fleet organizations and naval sea-based fire support. Specifically, this PE supports the following capabilities: promptly engaging regional forces in decisive combat on a global basis; responding to all other contingencies and missions in the full spectrum of combat operations (high, mid and low intensity), in Military Operations in Urban Terrain (MOUT), and in operations other than war (OOTW), and warfighting experimentation. By providing the technologies to enable these capabilities, this PE primarily supports the goals and objectives of the Strike, Littoral Warfare and Surveillance Joint Mission Areas. This PE supports all of the Marine Corps mission areas. Due to the number of efforts in this PE, the programs described are representative of the work included in this PE.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is budgeted within the ADVANCED TECHNOLOGY Budget Activity because it encompasses design, development, simulation, or experimental testing or prototype hardware to validate technological

feasibility and concept of operations and reduce technological risk prior to initiation of a new acquisition program or transition to an ongoing acquisition program.

B. (U) PROGRAM CHANGE SUMMARY FOR TOTAL PE:

	FY 2001	FY 2002	FY 2003
FY 2002 President's Submission	60,122	51,310	
Adjustments from FY 2002 President's Budget:			
SBIR Reduction	-1,081		
Execution Adjustments	-1,585		
8123 Management Reform Initiative Reduction		-550	
FFRDC Reduction		-117	
Congressional Plus-Ups		+11,200	
FY 2003 President’s Submission	57,456	61,843	51,606

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 3 PROGRAM ELEMENT: 0603640M
PROGRAM ELEMENT TITLE: Marine Corps Advanced Technology Demonstrations

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
C2297 Marine Corps Warfighting Lab-Core	35,064	42,545	33,050	33,563	34,893	38,428	36,506	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Marine Corps Warfighting Laboratory (MCWL) is the centerpiece experimental test bed for the operational enhancement of the Marine Corps. Using the Special Purpose Marine Air-Ground Task Force (Experimental) (SPMAGTF(X)), augmented by other Marine units, as its “test bed” organization, MCWL demonstrates the usefulness and necessity of integrating new technological developments and advanced concepts into the Operational Forces of the Marine Corps. MCWL focuses on developing and field testing future operational and technological concepts and serves as the focal point for the enhancement/refinement of future warfighting capabilities. The organizational thrust is to provide an institutional mechanism for continuously generating new ideas for warfighting capabilities. Concepts of operation are validated by means of various Warfighting Experiments.

(U) Through a process of experimentation, which is designed as an ongoing mechanism to insure the relevance of Marine forces in the face of change, MCWL experimentation encompasses inquiries into multiple technology and warfighting areas, including: Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) and Information Technology; Reconnaissance, Surveillance, and Target Acquisition (RSTA); Fires; Medical, Biological, Chemical, and Non-Lethal Technologies; Expeditionary Logistics; and Advanced Training and Education Techniques.

(U) MCWL develops tactics, techniques, and procedures (TTPs) and evaluates advanced technologies that create or enhance future warfighting capabilities, and integrates them into the Marine Corps Expeditionary Force Development System. MCWL also provides all the efforts for the Marine Corps Combat Development Command (MCCDC) Wargaming in support of the Expeditionary Force Development System and Experimentation.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 3 PROGRAM ELEMENT: 0603640M PROJECT NUMBER: C2297
PROGRAM ELEMENT TITLE: Marine Corps Advanced Technology Demonstrations PROJECT TITLE: MCWL

(U) Using experimental operational forces, beginning with the SPMAGTF(X) as the forward element of a future Naval Expeditionary Force (NEF), MCWL conducts a number of Advanced Warfighting Experiments (AWEs) supported by several Limited Objective Experiments (LOEs), Limited Technology Assessments (LTAs), Wargames, and Studies. LOEs, LTAs, and AWEs examine discrete variables in as much isolation as can be achieved. Technologies used in LTAs are gathered for use in larger LOEs while LOEs are building blocks from which resulting AWEs are constructed. Detailed descriptions are provided below:

-(U) An AWE is defined as a larger scale operational experiment where advanced warfighting capabilities and enabling technologies are evaluated to determine the military utility, operational effectiveness, and operational suitability in as realistic an environment as possible. These AWEs examine an operational concept that envisions a greatly expanded, lethal, fluid, chaotic, and more opportunistic battlefield within a maneuver warfare approach. An AWE answers experimental issues under conditions most closely approximating war using the Advanced Warfighting Concept under examination. It further serves as a venue for integrating all warfighting functions for the purpose of integrated experimentation. All experimentation conducted during a phase builds toward the AWE.

-(U) LOEs are considerably smaller in scope than AWEs and focus on a discrete set of closely related experiment objectives. These experimental forces will be highly trained, technologically infused, highly lethal, and intellectually prepared to fight in this chaotic and opportunistic environment. LOEs are designed to answer questions that, if left unanswered, would have a significant adverse impact on the successful execution of experimental operations in the related AWE.

-(U) LTAs are oriented on the performance characteristics of specific technologies and equipment to assess their usefulness by means of analysis or experimentation. MCWL conducts LTAs in cases where the performance characteristics of developing technology are insufficiently documented to conduct operational planning necessary for experimentation. MCWL plans and conducts LTAs to effectively incorporate a technology into follow-on experiments.

-(U) A Wargame is a broad discipline manifested in a range of activities from a few individuals conducting Action-Reaction-Counteraction drills to a significant commitment from Operating Forces Staff or SPMAGTF(X) Command Element (CE) to execute a Command Post Exercise (CPX) supported by extensive modeling and simulation (M&S). A Wargame is integral to MCWL's experimental process and precedes the execution of each LOE/AWE to refine the LOE/AWE Experimentation Plan.

-(U) A Study is a low-cost (relative to operational experimentation) technique designed to result in broader or deeper research into an Experimental Issue. MCWL undertakes a study when a literature search reveals that existing studies are inadequate to support experiment objectives and synthesis is required and is focused on one or a few closely related Experiment Issues. A Study can contribute to any stage of the Innovation and Experimentation Process, but is most useful during experiment planning.

(U) Under the guidance of the Experimental Campaign Plan (ECP) (formerly known as Five Year Experimentation Plan (FYEP)), MCWL's prior accomplishments and current plans include seven AWE "build-up" phases culminating in actual AWE execution:

-(U) Hunter Warrior: (March 1996 through April 1997) Experimented with advanced operational concepts and technologies on an extended and dispersed battlefield, in open and mountainous terrain at the mid-intensity operational level.
-(U) Urban Warrior: (April 1997 through June 1999) Focused on developing new TTPs and supporting technologies for operations in urban, close terrain, and near urban littoral areas.
-(U) Joint Contingency Force (JCF) (also known as Millennium Dragon): (October 1999 through September 2000) Designed to identify, study, and improve new concepts and tactics for the Marine Corps under the auspices of the Operational Maneuver from the Sea (OMFTS) concept. In support of these concept-based experiments, new enabling technologies were developed, tested, and evaluated for operational use in a combat environment.
-(U) Capable Warrior: (June 1999 through FY 2001) Used lessons learned in Hunter Warrior and Urban Warrior to integrate the full capability of a Marine Air-Ground Task Force (MAGTF) with naval units operating at the numbered fleet level of a Joint Task Force from the sea. Developed initial TTPs for an OMFTS force. Capable Warrior concluded with an experiment referred to as Kernel Blitz Experimental (KBX).
-(U) Millennium Challenge 2002 (MC02): (FY 2001 through FY 2002) Congressionally mandated, Secretary of Defense directed, United States Joint Forces Command (USJFCOM) sponsored joint field experiment. MC02 will be a large-scale, live, virtual, and constructive joint field experiment and demonstration, incorporating elements of all the Services and Special Operations Command critical future warfighting capabilities and forces at the operational level of war.
-(U) Olympic Challenge 2004 (OC04): (FY 2002 through FY 2004) Major joint exercise encompassing all services. Follow-on experimental effort to MC02, that will continue to explore the implementation of the Rapid Decision Operations concept. Experimentation will explore dynamic tasking from the joint headquarters directly to service forces bypassing service component headquarters.
-(U) Olympic Challenge 2006 (OC06): (FY 2004 through FY 2006) Follow-on experimental effort to OC04.

B. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS:

- (U)($3,972) Project Albert: (Congressional Enhancement) The Project Albert goal is to generate data to support warfighting hypotheses with emphasis on questions relating to urban warfare. Project Albert provides design and development of new tools to capture emergent behavior in synthetic environments that over time will lead to more effective maneuver warriors. Project Albert will continue efforts to support decision-making in a co-evolving world through developing data, concepts, and tools of 21st Century Operations Analysis especially in the areas of non-linear and asymmetric warfare. During FY 2001, Project Albert accomplishments included: 1) Design and implementation of a more realistic agent-based model of combat, to include enhanced command and control and communications features, as well as the implementation of "intangible" quantities such as morale, leadership, and unit cohesion; 2) Design and implementation of a Parallel Execution System (PES) which achieves a massively parallel and efficient approach to executing the large number of runs required by Project Albert models; 3) Beginning automation of data farming methodology through enhancements to the PES; 4) Researching and implementing innovative

ideas to data visualization; 5) Making extensive use of the SOCRATES and MANA models to gather data and conduct analyses in counter terrorist and peace support operations; 6) Implementing an evolutionary computation platform which searches the space of "all possible inputs" to a combat model; 7) Performing research in the area of co-evolutionary dynamics (the dynamics of competition); 8) Beginning development of an experimental framework within which specific operational scenarios can be studied more fully; and 9) Development of a scenario translation capability from the ISAAC model to the MANA model, in order to demonstrate the feasibility of validating operational concepts across levels of resolution.

- (U)($6,070) MCWL Operations (Support): Provided technical and strategic direction to MCWL and Marine Corps Science and Technology (ST) program to improve transition into Marine Corps acquisition. Began MC02 AWE Experimentation planning and technology investigations. Continued Strategic Planning through the location, development, and evaluation of advanced warfighting operational and organizational concepts and related enabling technologies. Synthesized results and lessons learned into proposed Tactics, Techniques, and Procedures (TTPs) for the Marine Corps. Continued research; planning; modeling and simulation (M&S), concept, and wargame development; preparation; execution; and analysis and assessment to extend exploration of critical components. This includes investigations into Operations Other Than War (OOTW). Continued providing technical and managerial support to the Marine Corps in matters relating to development and integration of new Marine Corps Tactics, Techniques, Technologies, and Procedures (TTTPs) in order to provide future Marine Corps capabilities in the areas of Doctrine, Organization, Training and Education, and Equipment and Support (DOTES). Continued to provide for Marine Forces (Atlantic and Pacific) Battle Laboratories to conduct experimentation. Completed Capable Warrior Experimentation Planning and technology investigations. Terminated stratagem development for future Marine Corps technological capabilities.

- (U)($12,806) Command, Control, Communications, Computers, and Intelligence (C4I): Initiated experiment pre-planning and C4I development to support the MC02 AWE. Evaluated the effectiveness of commercially available (off-the-shelf) technology for providing wireless connectivity from Marine squads into Integrated Marine Multi-Agent Command and Control System (IMMACCS). Investigated alternatives to IMMACCS/C4I Lab (formerly titled Experimental Command Operations Center (ECOC)). Initiated Marine Communications Interface Module (Airborne) research/experimentation efforts. Continued to develop information processing and to further integrate capabilities into the IMMACCS and the C4 Lab facility. Continued to develop enhanced capability for Shared Net and IMMACCS Graphical User Interface (GUI) (formerly titled Battlefield Visualization Tool (BVT)) efforts. Continued to develop/expand capability for the IMMACCS Agent Engine. Conducted experiments and evaluated the performance of advanced command and control investigations and experiments for sea based fire support. Continued/expanded Multi-Path, Beyond Line of Sight Communications Technology (MUBLCOM) and voice translation efforts. Continued to conduct and investigate red teaming concepts and technologies. Completed experimental planning and C4ISR development in support of the Capable Warrior AWE. Incorporated lessons learned from Millennium Dragon into ongoing technical development efforts and conducted LOEs planned for the build up to the Capable Warrior AWE. Evaluated performance of information management systems to provide the Common Tactical Picture at all levels (squad leader to Commander) of the MAGTF.

- (U)($5,847) Drones, Aviation, Sensors, and Vehicles: Initiated Dragon Eye Unmanned Aerial Vehicle (UAV) development/experimentation effort. Initiated M3M machine gun air experimentation by mounting the system on three helicopter platforms (UH-1N, CH-53E, and CH-46E). Continued small payload development for Dragon Warrior UAV. Continued Unmanned Ground Vehicle (UGV) payload and micro UAV/UGV payload development efforts. Continued development of a class of large population, autonomous robots capable of collecting and reporting on battlefield intelligence. Continued sensor technology investigations/experimentation focusing on ground based magnetic sensors. Continued investigations/experimentation in aviation technologies that could lead to increasing accuracy and effectiveness of Close Air Support missions and also reduce the possibility of fratricide. Continued aviation experimentation in the urban environment and aviation based simulation/instrumentation efforts. Continued to search for new and emerging technologies.

- (U)($2,069) Fires and Targeting: Repaired and incorporated minor improvements to the Mobile Fire Support System (MFSS) (formerly titled Dragon Fire) concept demonstrator. Continued development of a precision-targeting device that includes a laser rangefinder that will provide ground forces with accurate target acquisition. Continued experimentation with/development of small precise munitions. Continued rapid target system exploration/demonstration/development. Continued Combined Arms Coordination Simulation efforts. Continued thermal weapons technology search/developmental efforts. Continued to identify, purchase, and experiment with technologies/concepts to enhance the effectiveness of the warfighter. Expanded investigations into emerging fires and targeting technologies, to include, combat identification. Completed conceptual development of Mobile Counter-Fire System (MCFS).

- (U)($3,008) Seabasing, Logistics, Combat Service Support (CSS), and Combat in Cities (to include Training and Education): Reduced Guided Parafoil Aerial Delivery System (GPADS) efforts to include spare parachute canopies and attachments, as well as, C-130 flight clearance. Expanded Night Integrated Training Environment (NITE) Lab support, an indoor, year-round, multi-environment training facility. Initiated Project Rifleman efforts to evaluate concepts that will enhance the combat abilities of the individual Marine in expeditionary combat environments (i.e. Military Operations in Urban Terrain (MOUT)). Initiated Land Warrior efforts, an integrated computer/weapon system worn by the individual Marine. Established Joint Experimentation Cell program to facilitate MCWL's expanded joint experimentation role. Initiated investigations/experimentation in Urban Ground Reconnaissance TTPs. Initiated Ground Command and Control (GLC2) concept that generates accurate, real-time, mission critical data associated with tactical equipment by capitalizing on the existing technology and communications architecture for data collection, transmission, and dissemination. Continued to develop and integrate the CSS tools/systems/equipment that will make up the "Marine of 2020". Continued to invest in all types of simulation to allow required OMFTS warfighting capabilities to be tested. Continued to search for, evaluate, and perform seabased logistics support and seabasing analysis. Continued investigation/development of a system that tracks personnel involved in a Non-combatant Evacuation Operations. Continued rapid prototype development, demonstration, and transition of logistics information resources technologies. Continued system concept M&S support for decision support and technology plan

development for Joint Expeditionary Forces. Continued to investigate and incorporate automated information technologies for asset tracking, interactive, condition based maintenance support, and sensored logistics information feeds. Continued integrating clothing and equipment that will enhance Marines' survivability. Continued Project Metropolis experimentation efforts. Continued to experiment with electronic markers. Continued to leverage ongoing work in the Day/Night Small Unit Target Acquisition and Small Unit Logistics fields. Continued to evaluate CSS for emerging and developing weapons as they apply to operational concepts of logistics support and sustainment for various non-standard scenarios. Continued investigations into existing and emerging training enhancements and simulation equipment and devices. Continued to search for and to evaluate emerging commercially available technologies that could significantly improve efforts in this area. Completed packaging efforts.

- (U)($1,292) Chemical/Biological (Chem/Bio), Medical, Analysis, and Non-Lethals: Continued medical investigations, including investigations into the chem/bio arena. Continued to define the scope, nature, technical utilities, and TTPs that support domestic and international responses to the human and material casualties of a Weapons of Mass Destruction (WMD) deployment. Continued to support instrumentation capability that provides battlespace instrumentation for experimentation. Continued efforts to improve upon the automated data collection system. Continued to provide overall systems engineering and integration support for ongoing experimentation. Continued to provide overall analysis and reporting of experimentation efforts. Reduced investigations into seeking Non-Lethal technologies that can affect an opponent's infrastructure without necessarily destroying it. Reduced investigations into the use of Non-Lethal technologies to deter, delay, deny, disrupt, and destroy opponents or their material. Completed Project Atlanta efforts with Electro Chemical Activated Decontamination Technology (ECOSOL) study.

2. (U) FY 2002 PLAN:

- (U)($4,000) Project Albert: (Congressional Enhancement) The Project Albert goal is to generate data to support warfighting hypotheses with emphasis on questions relating to urban warfare. Project Albert provides design and development of new tools to capture emergent behavior in synthetic environments that over time will lead to more effective maneuver warriors. Project Albert will continue efforts to support decision-making in a co-evolving world through developing data, concepts, and tools of 21st Century Operations Analysis especially in the areas of non-linear and asymmetric warfare. During FY 2002, Project Albert plans to: 1)Continue the development of realistic agent-based models of combat with an emphasis on building a toolkit with a variety of ways to treat command and control, communication, combat, terrain, and decision making; 2) Design and analyze an influence network (use of Bayesian decision analysis) on a counter terrorist scenario; 3) Further development of the Parallel Execution System so that gridded search, evolutionary, and co-evolutionary studies can be accomplished quickly and easily; 4) Development of a scenario translation capability from the ISAAC model to the SOCRATES model, for use in validating operational concepts across levels of resolution; 5) Continue the research on the dynamics of competition, with the goal of implementing innovative ideas within military modeling and analysis; and 6) Continue to implement innovative approaches in data perception and understanding into the analysis tools that comprise the Albert toolkit.

- (U)($1,700) Fast Refueling System: (Congressional Enhancement) Provides for operational testing and evaluation, modifications, and purchase of the fast refueling system.

- (U)($1,700) Marine Corps Future Logistics: (Congressional Enhancement) Provides for expansion of the Future Naval Capability Expeditionary Logistics Program.

- (U)($2,500) Mobile Counter-Fire System (MCFS): (Congressional Enhancement) MCFS is a sniper detection system. Limited evaluations are being performed on a single platform (High Mobility Multi-purpose Wheeled Vehicle (HMMWV)) prototype system with a baseline software system. In addition, algorithm research is being conducted to address false-alarm issues.

- (U)($6,440) MCWL Operations (Support): Initiate OC04 AWE Experimentation Planning and technology investigations. Initiate Revolution in Military Affairs (RMA)/Project Ellis Program which is the Marine Corps component of the Office of the Secretary of Defense (OSD)/Net Assessment's RMA Wargaming Program. RMA provides an exploratory venue to address critical conceptual, organizational, and technical issues essential to success on the 21st century battlefield. Moreover, this program significantly strengthens Project Ellis as a process of accessing the impact of changes in the strategic landscape on concepts, organization, and technology. Continue Strategic Planning through the location, development, and evaluation of advanced warfighting operational and organizational concepts and related enabling technologies. Synthesize results and lessons learned into proposed TTPs for the Marine Corps. Continue research; planning; M&S, concept, and wargame development; preparation; execution; and analysis and assessment to extend exploration of critical components. This includes investigations into OOTW. Continue providing technical, strategic, and managerial support to the Marine Corps. Continue to provide for Marine Forces (Atlantic and Pacific) Battle Laboratories to conduct experimentation. Conclude development and integration of new Marine Corps TTTPs initiative. Complete MC02 Experimentation Planning and technology investigations.

- (U)($9,297) C4I: Initiate investigations into alternative over the horizon (OTH) communications technologies. Initiate Land Attack Warfare System (LAWS) support during MC02 AWE and IMMACCS testing. Initiate Integrated Global Positioning System (GPS) Radio System (IGRS) effort to aid in data collection efforts. Develop and purchase two high temperature super-cooling filters to extend the range of the current ultra high frequency (UHF) and very high frequency (VHF) radios. Expand Marine Corp Interface Module (Airborne) (MCIM) (A) research experimentation efforts. Continue to develop information processing and to further integrate capabilities into the IMMACCS and the C4 Lab facility. Continue to develop enhanced capability for Shared Net and IMMACCS GUI efforts. Continue to develop/expand capability for the IMMACCS Agent Engine. Continue to conduct experiments and evaluate the performance of advanced command and control investigations and experiments for sea based fire support. Continue to evaluate the effectiveness of commercially available (off-the-shelf) technology for providing wireless connectivity from Marine squads into IMMACCS. Reduce MUBLCOM efforts. Continue/expand voice translation efforts. Continue investigations into alternatives to IMMACCS/C4 Lab. Continue to conduct and investigate red teaming concepts and technologies.

Complete experimental planning and C4ISR development in support of the MC02 AWE. Incorporate lessons learned from Capable Warrior AWE into ongoing technical development efforts and conduct LOEs planned for the build up to MC02 AWE.

- (U)($7,669) Drones, Aviation, Sensors, and Vehicles: Add target tracking capability to Dragon Warrior Forward Looking Infrared (FLIR) payload. Add laser designation capability to Dragon Warrior Electro-optic/Infrared (EO/IR) payload. Initiate Dragon Runner Mobile Ground Sensor (MGS) development/experimentation efforts. Dragon Runner is a ground mobile sensor that will be used by marine infantry battalions. It has the capability to perform autonomously and cooperatively in multi-purpose operational venues in urban combat conditions. Continue small payload development for Dragon Warrior UAV. Continue UGV payload and micro UAV/UGV payload development efforts. Continue development of a class of large population, autonomous robots capable of collecting and reporting on battlefield intelligence, focusing on robotic ground sensor data transfer development. Continue sensor technology investigations/experimentation. Continue investigations/experimentation in aviation technologies that could lead to increasing accuracy and effectiveness of Close Air Support missions and also reduce the possibility of fratricide. Continue Dragon Eye investigations/experimentation. Continue M3M mounted on helicopter platforms experimentation. Continue aviation experimentation in the urban environment and aviation based simulation/instrumentation efforts. Continue to search for new and emerging technologies.

- (U)($3,342) Fires and Targeting: Design breach loading capability and redesign/fabricate fully functional MFSS concept demonstrator. Continue development of a precision targeting device that includes a laser rangefinder. Continue experimentation with/development of small precise munitions. Continue rapid target system exploration/demonstration/development. Continue Combined Arms Coordination Simulation efforts. Continue thermal weapons technology search/developmental efforts. Continue to identify, purchase, and experiment with technologies/concepts to enhance the effectiveness of the warfighter. Continue to investigate emerging fires and targeting technologies.

- (U)($4,462) Seabasing, Logistics, CSS, and Combat in Cities (to include Training and Education): Establish Tactical Warrior experimentation program to explore expanded tactical capabilities in the infantry platoon and company through changes in organization and the exploitation of changes in available training and technology. Initiate M3M machine gun ground experimentation by mounting the system on three vehicle platforms (High Mobility Multipurpose Wheeled Vehicle (HMMWV), 5-ton truck, and 7-ton truck). Continue to develop and integrate the CSS tools/systems/equipment that will make up the “Marine of 2020”. Continue to invest in all types of simulation to allow required OMFTS warfighting capabilities to be tested. Continue to search for, evaluate, and perform seabased logistics support and seabasing analysis. Continue investigation/ development of a system that tracks personnel involved in Non-combatant Evacuation Operations. Continue rapid prototype development, demonstration, and transition of logistics information resources technologies. Continue system concept M&S support for decision support and technology plan development for Joint Expeditionary Forces. Continue to investigate and incorporate automated information technologies for asset tracking, interactive, condition based maintenance support, and sensored logistics information feeds. Continue integrating clothing and equipment that will enhance Marines’ survivability. Continue MOUT experimentation efforts (to include Project Metropolis and Project Rifleman). Continue to experiment with electronic markers. Continue to

leverage ongoing work in the Day/Night Small Unit Target Acquisition and Small Unit Logistics fields. Continue to evaluate CSS for emerging and developing weapons as they apply to operational concepts of logistics support and sustainment for various non-standard scenarios. Continue investigations into existing and emerging training enhancements and simulation equipment and devices. Continue to search for and to evaluate emerging commercially available technologies that could significantly improve efforts in this area. Continue Land Warrior efforts. Continue GLC2 efforts. Continue Joint Experimentation Cell investigation/coordination efforts. Continue Urban Ground Reconnaissance efforts. Complete GPADS efforts. Complete NITE Laboratory support efforts.

- (U)($1,435) Chemical/Biological (Chem/Bio), Medical, Analysis, and Non-Lethals: Continue medical investigations, including investigations into the chem/bio arena. Continue to define the scope, nature, technical utilities, and TTPs that support domestic and international responses to the human and material casualties of a WMD deployment. Continue to support instrumentation capability that provides battlespace instrumentation for experimentation. Continue efforts to improve upon the automated data collection system. Continue to provide overall systems engineering and integration support for ongoing experimentation. Continue to provide overall analysis and reporting of experimentation efforts. Continue limited investigations into seeking Non-Lethal technologies that can affect an opponent's infrastructure without necessarily destroying it. Continue limited investigations into the use of Non-Lethal technologies to deter, delay, deny, disrupt, and destroy opponents or their material.

3. (U) FY 2003 PLAN:

- (U)($6,101) MCWL Operations (Support): Initiate OC06 AWE Experimentation Planning and technology investigations. Continue Strategic Planning through the location, development, and evaluation of advanced warfighting operational and organizational concepts and related enabling technologies. Synthesize results and lessons learned into proposed TTPs for the Marine Corps. Continue research; planning; M&S, concept, and wargame development; preparation; execution; and analysis and assessment to extend exploration of critical components. This includes investigations into OOTW. Continue providing technical, strategic, and managerial support to the Marine Corps. Expand OC04 AWE Experimentation Planning and technology investigations. Continue to provide for Marine Forces (Atlantic and Pacific) Battle Laboratories to conduct experimentation. Continue RMA/Project Ellis efforts.

- (U)($8,851) C4I: Initiate experimental planning and C4ISR development to support the OC04 AWE. Continue to develop information processing and to further integrate capabilities into the IMMACCS and the C4 Lab facility. Continue to develop enhanced capability for Shared Net and IMMACCS GUI efforts. Continue to develop capability for the IMMACCS Agent Engine. Continue to conduct experiments and evaluate the performance of advanced command and control investigations and experiments for sea based fire support. Continue to evaluate the effectiveness of commercially available (off-the-shelf) technology for providing wireless connectivity from Marine squads into IMMACCS. Continue/expand OTH communications investigations and voice translation efforts. Continue investigations into alternatives to IMMACCS/C4 Lab. Continue LAWS support during IMMACCS testing. Continue MCIM(A) research/experimentation efforts. Continue IGRS data collection efforts. Continue to conduct and investigate red teaming concepts and technologies.

- (U)($7,301) Drones, Aviation, Sensors, and Vehicles: Continue small payload development for Dragon Warrior UAV. Continue Dragon Warrior target tracking and laser designation payload efforts. Continue UGV payload and micro UAV/UGV payload development efforts. Continue development of a class of large population, autonomous robots capable of collecting and reporting on battlefield intelligence. Continue Dragon Runner MGS efforts. Continue sensor technology investigations/experimentation. Continue investigations/experimentation in aviation technologies that could lead to increasing accuracy and effectiveness of Close Air Support missions and also reduce the possibility of fratricide. Continue Dragon Eye investigations/experimentation. Continue M3M mounted on helicopter platforms experimentation. Continue aviation experimentation in the urban environment and aviation based simulation/instrumentation efforts. Continue to search for new and emerging technologies.

- (U)($3,182) Fires and Targeting: Continue breach loading capability redesign and fabrication efforts of the fully functional MFSS concept demonstrator. Continue development of a precision targeting device that includes a laser rangefinder. Continue experimentation with development of small precise munitions. Continue rapid target system exploration/demonstration/development. Continue Combined Arms Coordination Simulation efforts. Continue thermal weapons technology search/developmental efforts. Continue to identify, purchase, and experiment with technologies/concepts to enhance the effectiveness of the warfighter. Continue to investigate emerging fires and targeting technologies.

- (U)($6,249) Seabasing, Logistics, CSS, and Combat in Cities (to include Training and Education): Continue to develop and integrate the CSS tools/systems/equipment that will make up the “Marine of 2020”. Increase investment in all types of simulation to allow required OMFTS warfighting capabilities to be tested. Continue to search for, evaluate, and perform seabased logistics support and seabasing analysis. Continue investigation/development of a system that tracks personnel involved in a Non-combatant Evacuation Operations. Expand rapid prototype development, demonstration, and transition of logistics information resources technologies. Expand system concept M&S support for decision support and technology plan development for Joint Expeditionary Forces. Continue to investigate and incorporate automated information technologies for asset tracking, interactive, condition based maintenance support, and sensored logistics information feeds. Continue integrating clothing and equipment that will enhance Marines’ survivability. Continue MOUT experimentation efforts (to include Project Metropolis and Project Rifleman). Continue to experiment with electronic markers. Continue to leverage ongoing work in the Day/Night Small Unit Target Acquisition and Small Unit Logistics fields. Continue to evaluate CSS for emerging and developing weapons as they apply to operational concepts of logistics support and sustainment for various non-standard scenarios. Continue investigations into existing and emerging training enhancements and simulation equipment and devices. Continue to search for and to evaluate emerging commercially available technologies that could significantly improve efforts in this area. Continue Land Warrior efforts. Expand Joint Experimentation Cell investigation/coordination efforts. Continue GLC2 efforts. Continue M3M mounted on vehicle platforms experimentation. Continue Tactical Warrior efforts. Continue Urban Ground Reconnaissance efforts.

- (U)($1,366) Chemical/Biological (Chem/Bio), Medical, Analysis, and Non-Lethals: Continue medical investigations, including investigations into the chem/bio arena. Continue to define the scope, nature, technical utilities, and TTPs that support domestic and international responses to the human and material casualties of a WMD deployment. Continue to support instrumentation capability that provides battlespace instrumentation for experimentation. Continue efforts to improve upon the automated data collection system. Continue to provide overall systems engineering and integration support for ongoing experimentation. Continue to provide overall analysis and reporting of experimentation efforts. Continue limited investigations into seeking Non-Lethal technologies that can affect an opponent's infrastructure without necessarily destroying it. Continue limited investigations into the use of Non-Lethal technologies to deter, delay, deny, disrupt, and destroy opponents or their material.

C. (U) PROGRAM CHANGE SUMMARY EXPLANATION: See Program change total summary for PE.

(U) Schedule: MCWL was founded in October 1995 with an experimentation plan that culminated each two year experimentation phase with a major service Advanced Warfighting Experiment (AWE) on odd-numbered years. However, the requirements and opportunities of involvement in Joint Experimentation have led to a change in the Lab's experimentation program. Beginning with the Capable Warrior experiment (FY 2001) which centered around the Major Systems Demonstration of the Extended Littoral Battlespace (ELB) Advanced Concepts Technology Demonstration (ACTD), the Marine Corps major experiments shifted into support of major Joint Experimentation Events. The United States Marine Corps (USMC) moved its major service experiments in odd years to even years in order to align with the Joint Forces Command (JFCOM) Joint Concept Development and Experimentation (JCDE) Campaign Plan. While conducting its own service experimentation after this realignment, MCWL experiments also support the joint experiments and are being integrated with joint concepts and objectives.

(U) Technical: Joint Service participation will be the largest technical area impacted by the FY 2005 through FY 2007 increase of $12.5M, spread across the Future Years Defense Plan. MCWL, however, will continue to use all available avenues to augment funding (i.e., shared program efforts with other Services and leveraging other Service research, development, testing, evaluation, and experimentation), if necessary, to ensure that Marine Corps joint experimentation future goals and expectations are achieved.

D. (U) OTHER PROGRAM FUNDING SUMMARY: The Navy's 6.1 program contributes indirectly to this effort.

(U) RELATED RDT&E:

(U) NAVY RELATED RDT&E:
(U) PE 0602131M (Marine Corps Landing Force Technology)

(U) NON NAVY RELATED RDT&E: Not applicable.

E. (U) SCHEDULE PROFILE: Not applicable.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 3 PROGRAM ELEMENT: 0603640M
PROGRAM ELEMENT TITLE: Marine Corps Advanced Technology Demonstrations

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R2362	Extending the Littoral Battlespace (ELB)								
	8,293	948	951	0	0	0	0	0	44,283

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The Extending the Littoral Battlespace (ELB) Advanced Concept Technology Demonstration (ACTD) effort responds to the top level military need to rapidly deploy a Naval Expeditionary Task Force with an embarked Marine Air Ground Task Force (MAGTF) as part of a larger Joint Task Force to any region of the world's littorals and conduct military operations from a sea base across the spectrum of conflict to implement national military strategy. Forces employed ashore will be light, agile, distributed and desegregated and capable of optimizing remote fires, to effectively deter aggression, halt attacks and secure critical areas as a precursor to a much larger force. Forces will be empowered by unprecedented situational awareness via a robust information infrastructure that is fully coupled to a decision/planning/execution system on a shared battlespace network (sea/land). The objective of the ACTD is to demonstrate an enhanced integrated command and control/fires and targeting capability to enable rapid employment, maneuver, and fires to support joint dispersed unit operations in an extended littoral battlespace. A Major Systems Demonstration (MSDI) was completed FY 1999 and a second one (MSDII) was completed in FY 2001. The ELB ACTD was approved by Deputy Under Secretary of Defense (Acquisition and Technology) (DUSD (AT)) on 16 January 1997.

B. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 Accomplishments:

- (U)($8,293) Extending the Littoral Battlespace (ELB) Performed Systems Integration Tests, Full Systems Tests and a Major Systems Demonstration II. Determined, provided and supported transition sets of Full Systems Test (FST) and Major Systems Demonstration II technology. Demonstrated/Post Analysis for evaluating the system concept and assessing its military utility. Planned and conducted MSDII. Demonstrated activity that included systems installation, integration, testing, software verification and validation, ship installation, operator training and system scenario testing. Selected, provided and supported transition sets from Major System Demonstration II for further military utility and operator assessment. Demonstrated the C4ISR system of systems in a realistic combat scenario utilizing operational forces.

2. (U) FY 2002 PLAN:

- (U)($948) Transition technologies, hardware and software to military utilities for users. Demonstrate post demonstration analysis for the evaluation of system concepts and assess its military utilities. ELB determines, provides and supports transitional sets of Full Systems Tests (FST) and MSDII.

3. (U) FY 2003 PLAN:

- (U)($951) ELB continues the transition of demonstrated technologies, hardware, software, and processes to military acquisition communities. Conducting post demonstration testing and analysis for the further evaluation of system concepts and assessment of military utility and suitability. Continue support for service testbeds for integration of demonstrated technologies and establishment of technical infrastructure.

C. (U)PROGRAM CHANGE SUMMARY EXPLANATION: See Program change total summary for PE.

D. (U) OTHER PROGRAM FUNDING SUMMARY:

(U) NAVY RELATED RDT&E:

(U) PE 0603235N (Common Picture Advanced Technology)

(U) NON-NAVY RELATED RDT&E:
(U) PE 0603750D (Advanced Concept Technology Demonstration)

E. (U) SCHEDULE PROFILE: Not applicable.

BUDGET ACTIVITY: 3 PROGRAM ELEMENT: 0603640M
PROGRAM ELEMENT TITLE: Marine Corps Advanced Technology Demonstrations

(U) COST: (Dollars in thousands)

PROJECT NUMBER & TITLE	FY 2001 ACTUAL	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	FY 2007 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
R2223 Marine Corps ATD	11,680	17,061	17,605	19,099	22,266	23,573	24,417	CONT	CONT

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: As the land warfare component of Naval Expeditionary Forces power projection, the Marine Corps has unique and technologically stressing requirements resulting from its mission; Marine Air-Ground Task Force (MAGTF) organizational structure; and reliance on maneuver, logistic sustainability, and intensive tempo of operations in diverse environments. Critical Marine Corps requirements/imperatives being addressed in this Project are: Mobility; Weapons; Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR); Logistics; and Training and Education. These are ongoing efforts to develop and demonstrate advanced technologies and system concepts in an operational environment. Multiple transitions into the Sub-system/Component Advanced Development Phase are planned, as well as fieldable prototyping to reduce risk in System Concept Development and Demonstration. Joint service efforts are in line with Defense Technology Objectives (DTOs) and Joint Warfighting Objectives (JWOs). Efforts focus on connectivity between MAGTF and Fleet organizations and naval sea-based fire support. Specifically, this Project supports the following capabilities: promptly engaging regional forces in decisive combat on a global basis; responding to all other contingencies and missions in the full spectrum of combat operations (high, mid and low intensity), in Military Operations in Urban Terrain (MOUT), and in operations other than war (OOTW); and warfighting experimentation. By providing the technologies to enable these capabilities, this PE primarily supports the goals and objectives of the Strike, Littoral Warfare and Surveillance Joint Mission Areas. The Future Naval Capabilities (FNC) process is supported and funds are budgeted accordingly.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY: 3 PROGRAM ELEMENT: 0603640M PROGRAM ELEMENT TITLE: Marine Corps Advanced Technology Demonstrations

PROJECT NUMBER: R2223 PROJECT TITLE: Marine Corps ATD

B. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. (U) FY 2001 ACCOMPLISHMENTS:

- (U)($1,686) Mobility Thrust - Tested Reconnaissance, Surveillance and Targeting Vehicle (RST-V) power electronics and vehicle mobility.

- (U)($4,705) Weapons Thrust - Participated in Objective Crew Served Weapon (OCSW) development with Joint Service Small Arms Program (JSSAP), supporting system reliability enhancement and testing. Transitioned Complimentary Low Altitude Weapons System (CLAWS) to Marine Corps Systems Command Program Manager.

- (U)($1,661) C4ISR: Initiated Command and Control testbed for user prototyping requirements generation on prospective commercial and emerging software. Completed Command and Control testbed (moved from 0602131M). Completed Ultrawide-band radio system integration and prototype hardware delivery. Completed development of prototype gryo-compass for Enhanced Targeting and Location System (transferred to Time-Critical Strike Future Naval Capability).

- (U) ($2,265) Logistics: Development of Fuel Automated Quantity System (FAQS) with interface to Small Unit Logistics (SUL) program. Demonstration of SUL ACTD in Exercise Desert Knight. Continued development of tactical logistics distribution system, Modeling and Simulation program.

- (U)($1,363) Training & Education Thrust - Transitioned Advanced Amphibious Assault Vehicle (AAAV) modeling and simulation products developed as part of the Small Unit Tactics Trainer (SUTT) program to the Capable Manpower (CM) Future Naval Capabilities (FNC) program. Transitioned the AAAV Simulator Prototype to the Direct Reporting Program Manager for AAAV in support of developing a virtual environment training capability for the AAAV gunner, driver, and vehicle commander.

2. (U) FY 2002 PLAN:

- (U)($3,321) Mobility Thrust- Demonstrate light vehicle mobility and survivability. Test and experiment with RST-V in the field.

- (U)($1,964) Weapons Thrust- Fuse combat vehicle targeting/sensors. Leverage Loitering Electronic Warfare Killer (LEWK) joint effort to meet Marine Corps needs. Develop air bursting munition and test weapon reliability of the Objective Crew Served Weapon with Joint Small Arms Program.

- (U) ($1,908) C4ISR: Initiated integration of Mobile Direction Finding capability (moved from 0602131M) for transition to the Team Portable Collection System program (from 0602131M). Completed Mobile Direction Finding Advanced Technology Development (transition).

- (U) ($2,809) Logistics: Transition management of several systems to SUL to Marine Corps Systems Command. Complete development on Onboard Vehicle Refueler Communication (OVRC) and Fuel Automated Quantity System (FAQS). Concepts of Operations work on Expeditionary Fuel System 400.

- (U)($1,059) Training & Education Thrust – Complete prototype development and testing of the Close Combat Marine and Marine Air/Ground Task Force (MAGTF) 21 Tactical Decision Games (TDG). Evaluate technologies available for the development of a Logistics TDG. This TDG will be capable of networking with other TDGs and providing tactically relevant training for the Combat Services Support Element (CSSE) of the MAGTF. Develop and evaluate technologies for the development of a Training Mission Support Center (TMSC). The TMSC will provide a distributed collaborative training environment to seamlessly share information between geographically separate elements in support of all phases of mission planning, analysis, rehearsal, execution and evaluation training. The TMSC will also provide a test bed for further evaluation of technologies to augment human cognition for enhanced decision making ability.

- (U)($1,500) Littoral Combat/Power Projection: Initiate program planning to include the development of Enabling Capabilities, Technology Products, Metrics, Exit Criteria, Technology Risk, and Demonstration planning. Identify and fund technologies that can be demonstrated to specific exit criteria to transition to acquisition.

- (U)($500) Littoral Combat/Power Projection: Conduct Expeditionary Maneuver Warfare (EMW) wargame to determine critical capability gaps that are particularly well suited to be resolved by innovative science and technology solutions in support of the new USMC capstone concept. Several specific expeditionary vignettes encompassing a high-end forcible entry scenario, a high-end forward operations scenario, and a low-end “three block war” scenario will drive the game.

- (U)($4,000) Littoral Combat/Power Projection: Prepare and release Broad Agency Announcements for innovative technology solutions in the capability gap areas that emerged from the insights gained from the EMW wargame. Evaluate and select submitted proposals for funding in the areas of C4ISR, Expeditionary Fires, and Maneuver.

3. (U) FY 2003 PLAN:

- (U)($2,792) Mobility Thrust-Demonstrate advanced vehicle technology test bed. Demonstrate light vehicle mobility and survivability. Transition RST-V to Hybrid Electric Ships and Combat Vehicles Future Naval Capabilities (FNC).

- (U)($1,899) Weapons Thrust-Develop technologies explored in munitions study. Determine potential to improve M-203 system via airbursting fuse concept. Develop OCSW with JSSAP. Fuse combat vehicle targeting/sensor to improve probability of detection and enhance awareness via multi sensor inputs and in a single display.

- (U)($2,592) C4ISR: Reinitiate Command and Control Technology testbed for user prototyping, requirements generation on prospective commercial and developmental software products. Initiate demonstration of Low-Probability of Intercept/Low-Probability of Detection (LPI/LPD) ultra-wide band radios for antenna remoting. Initiate development and demonstration of a Marine-portable, deployable, Tactical Jammer. Initiate development and demonstration of an advanced, wide-spectrum tactical signals intelligence receiver. Complete demonstration of LPI/LPD antenna remoting.

- (U)($2,192) Logistics: Distribution capabilities will be investigated to allow for seamless flow of Combat Service Support to forward based Marine units from a Sea-Based environment. Mission Planning and Modeling and Simulation tools that assist the Logistician to effectively and efficiently support the Warfighter in an Expeditionary Maneuver Warfare environment will be explored. Continued work on Sensors and Autonomic logistics will be conducted to provide the Commander a Common Operating Picture of logistics and readiness in a tactical environment.

- (U)($1,992) Training & Education Thrust - Complete the Logistics Tactical Decision Game (TDG) and transition to the Program Manager for Training Systems (PMTRASYS) for further development and enhancement. Initiate prototyping of technologies developed in the applied research program for the Portable Synthetic Environment Generation system. This system will be capable of automatically producing a three dimensional synthetic database from a video stream of real world terrain and cultural features in a 'common' database format suitable for Close Quarter Battle (CQB) and Military Operations in Urban Terrain (MOUT) training. . Continue to evaluate technologies available for the development of a Training Mission Support Center (TMSC). The TMSC will provide a distributed collaborative training environment to seamlessly share information between geographically separate elements in support of all phases of mission planning, analysis, rehearsal, execution and evaluation training. The TMSC will also provide a test bed for further evaluation of technologies to augment human cognition for enhanced decision making ability.

- (U)($1,638) Littoral Combat/Power Projection: Development of advanced Command and Control technologies for Amphibious Task Force (ATF).

- (U)($2,000) Littoral Combat/Power Projection: Development of advanced Expeditionary Fires technologies to include platform and weapon stabilization techniques to enable firing on the move.

- (U)($1,000) Littoral Combat/Power Projection: Development of advanced technologies for MAGTF Maneuver in the Littorals.

- (U)($1,500) Littoral Combat/Power Projection: Development of prototype Intelligence, Surveillance, and Reconnaissance technologies for the ATF.

C. (U) PROGRAM CHANGE SUMMARY EXPLANATION: See Program change total summary for PE.

D. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable

(U) NAVY RELATED RDT&E:
- (U) PE 0601152N (In-House Laboratory Independent Research)
- (U) PE 0601153N (Defense Research Sciences)
- (U) PE 0204163N (Fleet Communications -(Tactical))
- (U) PE 0602782N (Mine and Expeditionary Warfare Applied Research)
- (U) PE 0603782N (Mine and Expeditionary Warfare Advanced Technology)
- (U) PE 0603235N (Common Picture Advanced Technology)
- (U) PE 0206623M (Marine Corps Ground/Supporting Arms Systems)
- (U) PE 0602131M (Marine Corps Landing Force Technology)
- (U) PE 0603612M (Marine Corps Mine/Countermeasures Systems)
- (U) PE 0603635M (Marine Corps Ground Combat/Support System)
- (U) PE 0206313M (Marine Corps Communications Systems)
- (U) PE 0603236N (Warfighter Sustainment Advanced Technology)

(U) NON-NAVY RELATED RDT&E:
- (U) PE 0603004A (Weapons and Munitions Advanced Technology)
- (U) PE 0603005A (Combat Vehicle and Automotive Advanced Technology)
- (U) PE 0603606A (Landmine Warfare and Barrier Advanced Technology)
- (U) PE 0603607A (Joint Service Small Arms Program)
- (U) PE 0603619A (Landmine Warfare and Barrier Advanced Development)
- (U) PE 0603772A (Advanced Tactical Computer Science and Sensor Technology)
- (U) PE 0604710A (Night Vision Systems - Engineering Development)
- (U) PE 0604808A (Landmine Warfare and Barrier Engineering Development)
- (U) PE 0602301E (Computing Systems and Communications Technology)
- (U) PE 0602702E (Tactical Technology)

E. (U) SCHEDULE PROFILE: Not applicable.

FY 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: February 2002

BUDGET ACTIVITY:3

PROGRAM ELEMENT: 0603640M
PROGRAM ELEMENT TITLE: Marine Corps Advanced Technology Demonstrations

CONGRESSIONAL PLUS-UPS

This section describes the following Congressional Plus-Ups appropriated in FY 2001 or FY2002 in this program element:

California Central Coast Research Partnership (C3RP) Initiative (Project R2295)
Remote Precision Gun Aiming Platform (Project C2996)

1. FY 2001 Congressional Plus-ups:

- (U) ($1,448) C3RP identified eleven pilot research projects that were selected for funding in FY01. These include projects highly relevant to defense, Marine Corps, and national security: Design Methodologies for Analog/Mixed Signal Very Large Scale Integration (VLSI) Systems Applied to Infrared Focal Plane Arrays; Development of an Autonomous Tactical Reconnaissance Platform; Development of Field Rechargeable Gas Mask Filters; Exploitation of Network Bandwidth and The Ethernet/Internet Protocol Application Layer Standard for Automation Networks; Gas Pocket Models for High Velocity Underwater Projectiles; A Service-Oriented Distributed Approach to Disaster Management Decision -Support Systems; Development of Technologies for Semiconductor Processing: A Partnership with Applied Materials Corporation; Geographic Forecasting: Simulation & Analysis of Fire Patterns; and Correlation of Milk Composition and Fouling with Biofilm Formation and Microbial Spore Production in Heat Exchangers. Initiated the establishment of two research facilities to support future research efforts. These include a computer networking research laboratory and a photovoltaic facility. The project's leaders continue to work with private and government partners to advance the project and secure participating funding.
- (U)($971) Remote Precision Gun Aiming Platform: The Remote Precision Gun is a system by which a machine gun is placed on a Telepresent Rapid Aiming Platform, Model T-2 (TRAP-2) which allows the gun to be aimed, via a remote control, by a gunner in a secured location. Three TRAP T-2s and one TRAP T-250 systems were purchased and funding provided to obtain technical and analytical services in order to assist the Marine Corps Warfighting Laboratory (MCWL) in developing and executing technical and user assessments of the TRAP T-2 and the TRAP T-250 weapons systems. Limited Technical Assessments (LTAs) and experiments involving this system emphasize Force Protection issues.

2. FY 2002 Congressional Plus-ups:

- (U) ($1,289) C3RP will define an area of core excellence and establish an Interdisciplinary Center of Excellence in research relevant to national security and the Marine Corps on the Central Coast of California by bringing together the University, government agencies and units (both federal and state), and the private sector, which can evolve into an exceptional national resource. Efforts will continue to explore this potential and to identify and support relevant research and expertise.