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

June 2001

BUDGET ACTIVITY
7 - OPERATIONAL SYSTEMS DEV

PE NUMBER AND TITLE
0708045A - INDUSTRIAL PREPARDEDNESS

COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	84285	89067	45697	0	0	0	0	0	0	0
E25 MFG SCIENCE & TECH	55630	60770	31323	0	0	0	0	0	0	0
E27 RELIABILITY, MAINTAINABILITY & SUSTAINABILITY(RMS)	28655	18450	14374	0	0	0	0	0	0	0
E32 COSSI	0	9847	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification:

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

The goal of this program element (PE) is to work with industry to find new ways to improve readiness and reduce Total Ownership Cost for the Army through new manufacturing technologies and enhancements/improvements to legacy systems. The technologies introduced through this PE support the Army transition to the Objective Force. This program element comprises three projects: Manufacturing Technology (ManTech); Reliability, Maintainability and Supportability (RM&S); and the Commercial Operations and Support Savings Initiative (COSSI). The goal of the Army ManTech program is to provide essential manufacturing technologies that will enable affordable production and sustainment of future and legacy weapon systems. Objectives include development of advanced manufacturing processes, equipment and systems; enhancement in quality while achieving reduction in cost of Army materiel; and transferring improved manufacturing technologies to the industrial base. The ManTech program is especially important in the current environment because of the large decline in weapon system production investments. Projects selected to be funded under this program have the potential for high payoff across the spectrum of Army weapon systems as well as significant impact on national manufacturing issues and the U.S. industrial base. The RM&S program funds projects that reduce operations and support costs through reliability, maintainability, and/or supportability improvements to fielded weapons systems or major end items. The mission of the COSSI program is to reduce operations and support costs by developing, testing, and implementing a method to insert commercial items into fielded military systems on a routine and expedited basis. COSSI was funded in DOD PE 0603805E through FY 1998, transferred to Army PE 0604824 in FY 1999, and then to PE 0708045A in FY 2000.

The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan and Project Reliance. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

B. Program Change Summary	FY 2000	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2001 PB)	99528	57906	57474	0
Appropriated Value	100667	89906	0	
Adjustments to Appropriated Value	0	0	0	
a. Congressional General Reductions	0	0	0	
b. SBIR / STTR	-2614	0	0	
c. Omnibus or Other Above Threshold Reductions	-401	0	0	
e. Below Threshold Reprogramming	-12629		0	
f. Rescissions	-738	-839	0	
Adjustments to Budget Years Since FY2001 PB	0	0	-11777	
Current Budget Submit (FY 2002/2003 PB)	84285	89067	45697	0

Change Summary Explanation: Funding - In FY 2001, Congressional adds were received for the following Manufacturing Technology (ManTech) projects: TIME (+7000), Optics manufacturing (+2000), Continuous and manufacturing technology (ManTech) (+3000), SINCGARS (+1000), Munitions manufacturing (+15000), Printed Wiring Board Manufacturing and Technology Center (+3000), and Air compressors (+1000).

FY 2002 and FY 2003: Reductions due to realignment to higher priority activities of the Army Transformation.

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

June 2001

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - OPERATIONAL SYSTEMS DEV	**0708045A - INDUSTRIAL PREPARDEDNESS**	**E25**

COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
E25 MFG SCIENCE & TECH	55630	60770	31323	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: The goal of the Army Manufacturing Technology (ManTech) program is to provide essential manufacturing technologies that will enable the affordable production and sustainment of future and legacy weapon systems including support for Future Combat Systems (FCS) and the Objective Force. Objectives include development of advanced manufacturing processes, equipment and systems; enhancement in quality while achieving reduction in cost of Army materiel; and transferring improved manufacturing technologies to the industrial base. The ManTech program is especially important in the current environment because of the large decline in weapon system production investments since most manufacturing technology was formerly accomplished within individual production programs. Projects selected to be funded under this program have the potential for high payoff across the spectrum of Army weapon systems as well as significant impact on national manufacturing issues and the U.S. industrial base. Other factors considered for project selection include cost share with both industry and the program managers as well as return on investment. Major programs are identified as Manufacturing Technology Objectives (MTOs). This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

FY 2000 Accomplishments

- 20689 Ammunition - Developed architecture for totally integrated munitions enterprise systems to include product data management, resource planning systems, change control systems and logistics systems. Demonstrated production runs for improved manufacturing of CL20 energetic material, conducted process analysis and developed demonstration process for automated concurrent engineering system to assist the construction of composites in munitions and improved manufacturing processes of explosively formed penetrators. Tested the 120mm Practice Mortar Fins statically and ballistically to reduce the cost of producing the sabot for the M829E3 kinetic energy projectile by 7% in support of the knowledge and process tools for manufacturing of affordable composites MTO.
- 7446 Aviation - Developed technology and demonstration equipment to increase manufacturing yield of ultraviolet filter materials to meet the optical requirements of the Common Missile Warning System sensor. Demonstrated manufacturing processes at the Instrumented Factory for Gears (INFAC) to include automated robotic deburring and face hobbing of gears for Comanche, Apache and Black Hawk helicopters; created and institutionalized a depot life cycle repair environment for rotary wing aircraft sustainment to reduce repair cycle time and costs; developed thin wall casting manufacturing technique for demonstration on Apache 36-155 auxiliary power unit. Through an MTO, optimized the Comanche fabrication processes and improved other process capabilities to reduce the time required to manufacture large scale composite components for rotary wing aircraft.

FY 2000 Accomplishments (Continued)

- 2197 Command and Control - Developed prototype large bulk ceramics and supporting components of X-band phase shifters for the manufacture of electronic scanning antennas to reduce size of radar by a factor of 5 with a 50% weight reduction. Scaled-up manufacturing capabilities and developed manufacturing improvements for active matrix electro-luminescent displays; improved production yield of active matrix liquid crystal displays by reducing defects during manufacturing.
- 4245 Combat Service Support - Completed cost reduction process enhancements for the manufacturing of ceramic plates used in next generation body armor. Reduced weapon system costs through a sustainment center targeted at supportability issues to reduce repair and remanufacturing requirements. Integrated seam sealing with existing sewing equipment to reduce labor costs and prevent leakage in tents. Developed and demonstrated a natural gas engine drive air compressor for military use.
- 10282 Fire Support - Demonstrated modeling process for increased performance and decreased cost of weapon system gun barrels to meet a Tantalum Sputtering MTO goal to increase barrel life by 600%. Through an MTO, developed improvements in the warhead for the Objective Individual Combat Weapon (OICW) and Objective Crew-Served Weapon (OCSW) to reduce its cost from $10.11 to $5 - $6. Through an MTO for wafer applied seal for plastic encapsulated microcircuit protection, developed a coating process for use during manufacturing of military application integrated circuits subjected to long term, unpowered storage, increased the manufacturing yield by 5%, decreased testing requirements, and increased the shelf life. Prepared for the development of affordable inertial guidance units for air-to-ground missile systems using micro-electro-mechanical systems (MEMS) in support of an MTO. Constructed a semi-automated cannon tube reshaping machine and conducted accuracy tests to demonstrate large caliber cannon tube reshaping to enhance lethality and survivability of the M1A1 tank and future combat systems through an MTO. Demonstrated manufacturing technologies for improved digital signal processing systems for guidance and control packages used in fire support.
- 8943 Intelligence and Electronic Warfare - Demonstrated yields greater than 50% for 240x320 uncooled Focal Plane Arrays (FPAs), demonstrated low cost anti-reflective coatings for IR optics, and demonstrated batch manufacturing processes for net shape lenses in support of the Cooled and Uncooled Staring Sensors MTO that impacts Drivers Vision Enhancer, Thermal Weapons Sight, Javelin, and Objective Individual Combat Weapon/Objective Crew-Served Weapon (OICW/OCSW). Developed manufacturing processes for electro-optical materials. Developed and demonstrated an automated reverse engineering system that will non-destructively extract information necessary to remanufacture obsolete printed wiring assemblies for mobile subscriber equipment, AH-64 Apache, Stinger Missile, Guardrail and ground communication systems. Demonstrated rapid response system for the reverse engineering of printed wiring assemblies at Tobyhanna Army Depot; through an MTO, continued optics manufacturing development for weapons system affordability. Developed manufacturing technologies to demonstrate an affordable short-wave infra-red gated camera tube devoted to target detection.
- 1828 Maneuver - Automated pre-form technologies for large, light-weight composite structures for new tactical vehicles, determined process capabilities through simulation of Comanche, and developed non-proprietary cost models and process models for thin section resin transfer moldings to reduce manufacturing costs by 30% through an MTO.

Total 55630

FY 2001 Planned Program

- 304 Ammunition - Conduct pre-qualification test and initiate production improvement program to lower the cost and improve the manufacturing processes for the 120mm Practice Motar Fins in support of the knowledge and process tools for the Manufacturing of Affordable Composites MTO.
- 1710 Aviation - Achieve 30% to 60% component cost reduction of thin wall castings for auxiliary power units and propulsion systems; through Power Transfer Systems Manufacturing (PTSM) develop a manufacturing process for chemical surface finishing of rotating shafts and gears to extend service life and increase load-carrying ability for aerospace components. Through an MTO, demonstrate Comanche pilot structural composite manufacturing improvement processes that significantly reduce the weight and cost of manufacturing large scale composite components.
- 2235 Command and Control - Fabricate and test phase shifters for electronic scanning antennas and demonstrate 20X reduction in power requirements for phase shifters. Demonstrate manufacturing processes to control cell gap uniformity to lower cost of active matrix liquid crystal displays to lower the cost from $12K to less than $2K per system. Demonstrate phosphor and metals deposition manufacturing processes to increase yields of Active Matrix Electro-Luminescent displays used in Land Warrior and Thermal Weapons System.
- 350 Combat Service Support - Refine seam-sealing technology process, expand production capability and field test.
- 14077 Fire Support - Increase performance and decrease cost of weapon system gun barrels with specific subtasks to include the manufacture and installation of sputtering targets and development of manufacturing processes for large caliber gun barrels through the MTO in tantalum sputtering. Insert special coated integrated circuits into selected military systems for demonstration and validation through the MTO in wafer applied plastic encapsulated microcircuit protection to demonstrate a 78% improvement in resistance to internal corrosion and improve fabrication and packaging yields by 5% (significant for large production volume). Develop manufacturing processes for inertial measurement units utilizing micro-electro-mechanical systems (MEMS) and model process flow of the assembly process in an MTO. Through the Uniform Cannon Tube Reshaping MTO, improve centerline bore measurement and integrate computer control for large caliber cannon tube reshaping to enhance lethality and survivability of the M1A1 and Future Combat Systems. Demonstrate affordable advanced tungsten warhead and steel warhead designs through an MTO for the Objective Individual Combat Weapon (OICW) and Objective Crew-Served Weapon (OCSW). Utilize commercial digital signal processors and alternative design guidance and control modules to reduce new upgrade procurement costs by 25% for Army TACMS 2000 and Patriot PAC3 guidance and control modules.
- 6616 Intelligence and Electronic Warfare - Demonstrate 15% yield for 240x320 cooled dual color FPAs and transfer processes to 480x640 cooled dual color FPAs through the Cooled and Uncooled Staring Sensors MTO. Through an MTO, demonstrate an Advanced Asphere Optic to reduce weight and cost of optical subsystems such as that used on Objective Individual Combat Weapon (OICW). Demonstrate manufacturing processing for square photocathodes that are more efficient than round photocathodes to reduce the cost of short wave infrared gated camera tubes used in target detection and recognition. Develop several viable production methods to integrate electrical and optical conductive networks, miniature sensors, and electronic devices into textile based clothing and equipment to support Future Warrior systems.

FY 2001 Planned Program (Continued)

- 1708 Maneuver - Implement investment strategy for risk reduction, knowledge base development, and tooling for the MTO in knowledge and process tools for manufacturing affordable composite structures, and optimize the Armor Tile Processing and Placement to reduce the cost of the Crusader turret by 37%.

FY01 Congressional adds:

- 7000 Totally Integrated Munitions Enterprise (TIME) will continue another year of effort supported by previous Congressional adds that enables cost effective, agile, rapidly reconfigurable, distributed enterprise and control technologies for munitions manufacture. Goals: Develop manufacturing technologies essential to the affordable production of conventional and precision munitions; develop, integrate, and demonstrate the TIME system architecture, Open Modular Architecture Controller (OMAC) modules/application programming interfaces for machine tools and other process controllers, communications, software, and other critical technologies necessary to achieve the objectives of TIME.
- 2000 Optics manufacturing provides for a one year effort toward enabling the affordable fabrication, testing and assembly of complex optical elements. Goals: Develop and characterize processes for shaping and finishing optical glasses and infrared transmitting materials for military systems and develop processes for fabricating durable multi-spectral transmitting windows.
- 3000 Continuous and manufacturing technology (MANTECH) provides for a one year effort toward essential manufacturing technologies that will enable the affordable production and sustainment of future weapon systems. Goal: Demonstrate a continuous manufacturing process to produce low-cost, low weight aluminum metal matrix composite components with tailorable properties.
- 1000 Single Channel Ground and Airborne Radio System (SINCGARS) provides for a one year manufacturing process development effort for rechargeable bipolar wafer-cell nickel metal hydride (NiMH) batteries for the SINCGARS radio system.
- 15000 Munitions Manufacturing will continue another year of effort supported by previous Congressional adds to reduce product variability and reduce cost of production. Goal: Develop manufacturing technologies essential to the affordable production of conventional and precision munitions.
- 3000 The Printed Wiring Board Manufacturing and Technology Center will continue another year of effort supported by previous Congressional adds for the development and application of printed wiring board technology for weapon systems. Goal: Develop manufacturing technologies essential to the affordable production of advanced printed wiring boards (PWBs) for DoD weapon systems.
- 1000 Air compressors will continue research supported by previous Congressional adds to apply natural gas engine driven air compressor technology to Army installations. Goal: Conduct cost-shared demonstration to achieve savings in operational budgets through the high efficiency and low overall cost of environmentally benign natural gas engine-driven air compressor technology.
- 1770 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 60770

FY 2002 Planned Program

•	1754	Aviation - Refine surface finishing process, fabricate test specimens and conduct rolling contact fatigue tests for aerospace power transfer systems components through Power Transfer Systems Manufacturing (PTSM). Initiate transition of 6-Sigma improved composite manufacturing processes through an MTO to reduce the labor required to produce Comanche lower forward fuselage and Apache Longbow mid fuselage by 25%. Reduce manufacturing cost of sensor element material used in advanced threat/countermeasures/common missile warning systems.
•	841	Command and Control - Demonstrate active matrix electro-luminescent display manufacturing and process improvements and cost reductions early in the fielding cycle.
•	20556	Fire Support - Demonstrate increased performance and decreased cost through the MTO for Tantulum Sputtering of Large Caliber Gun Barrels including the manufacture and set-up of 120mm and 155mm sputtered barrels. Develop manufacturing processes and model process flow of the assembly process for inertial measurement units utilizing micro-electro-mechanical systems through an MTO. Conduct fatigue testing and validate cannon tube reshaping process and precision reshaping algorithms to improve cannon tube straightness on 120mm barrels through an MTO. Demonstrate manufacturing process for fuze circuit, application specific integrated circuits and safe-and-arm for the Objective Individual Combat Weapon/Objective Crew-Served Weapon (OICW/OCSW) MTO; scale up manufacturing process, optimize design for manufacturing and reliability, demonstrate digital signal processing technologies and transition to TACMS and PAC3. Produce titanium ingots, develop simulation tools to optimize forging and casting and demonstrate out-of-chamber flux-cored welding process for use with ground vehicle applications through an MTO.
•	6265	Intelligence and Electronic Warfare - Fabricate and integrate 480x640 cooled mid-wave infrared and long-wave infrared focal plane array (FPA) and dewar manufacturing improvements to achieve the MTO focused on cooled and uncooled infrared staring sensors. Through an MTO, initiate process improvements for an Advanced Asphere Optic to reduce weight and cost of optical subsystems. Demonstrate improved manufacturing processes for short-wave infra-red gated camera tube used for target detection.
•	1907	Maneuver - Complete cost model and enhance process models for thick section composite resin transfer molding process supporting Crusader for the MTO in knowledge and process tools for manufacturing affordable composite structures.
Total	31323	

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

C. Acquisition Strategy: Not applicable for this item.

D. Schedule Profile: Not applicable for this item.

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

June 2001

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - OPERATIONAL SYSTEMS DEV	**0708045A - INDUSTRIAL PREPARDEDNESS**	**E27**

COST (In Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
E27	RELIABILITY, MAINTAINABILITY & SUSTAINABILITY(RMS)	28655	18450	14374	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: The Reliability, Maintainability and Supportability (RM&S) program supports innovative, state-of-the-art projects to improve readiness and reduce Operations and Support (O&S) costs by replacing or improving components of fielded weapon/legacy systems with more reliable, maintainable and/or supportable items. The RM&S program is limited to improvements that reduce the cost of ownership for fielded systems and equipment. RM&S funds generally may not be used to modify a weapon system currently in development, until the weapon system has satisfied all supportability requirements defined in the Operational Requirements Document (ORD) or system specification. The RM&S program uses Research, Development, Test and Evaluation (RDT&E) funding, which allows the pursuit of complex technology insertion projects. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

FY 2000 Accomplishments

- 515 Ammunition - Designed a less expensive .50 caliber cartridge for the long range sniper rifle for use by the Army Sniper School and in other sniper training.
- 12880 Aviation - Performed analytical and design studies, prepared modification drawings, and developed smart orifices for a high performance scalable landing gear shock strut that is less susceptible to damage. Completed and implemented a preventive and predictive maintenance expert system for real time monitoring and tracking of sources of machine deterioration for Corpus Christi Army Depot's (CCAD) automatic test equipment; completed risk reduction, continued engineering design and development, and began test article fabrication for a new CH-47 dry rotor hub to eliminate wet bearings and replace the bearings with elastomeric bearings which require no additional lubrication. Established an aggressive fleet maintenance management capability composed of process, policy, and hardware improvements to reduce support costs and improve operational readiness for the CH-47 fleet. Baselined a process to establish and institutionalize a depot life cycle repair environment to reduce repair cycle time and the cost to repair military aircraft, engines and components through the Rotary Wing Aircraft Sustainment Project (RWASP). Integrated a universal common automatic recovery system into the Hunter system to reduce attrition of air vehicles and reduce level of repair required after crashes.
- 1835 Command and Control - Prepared the contract to reverse engineer the obsolete parts for AN/PRC-112 radios, ensuring that the basic, proven radio can continue to serve as the backbone of the search and rescue system.

FY 2000 Accomplishments (Continued)

- 5586 Combat Service Support - Developed an accelerated, short term, high temperature testing method to establish new shelf life parameters for Meal, Ready-to-Eat (MRE) items to reduce costs incurred as a result of protracted storage studies. Redesigned the current commercially based rechargeable lithium battery technology into a format that fully meets the technical and operational requirements of the military, and is technically superior and more cost effective than the silver zinc battery currently used for the Improved Target Acquisition System (ITAS) and the small cell lithium ion battery technologies currently available for use with the Land Warrior system. Through market analysis, determined there are three suitable alternative water resistant, vapor permeable fabrics for the extended cold weather clothing system that reduce weight, improve cold weather protection, and reduce overall costs. Developed a test plan for a commercial wastewater treatment system to treat laundry wastewater for reuse in latrines and showers and a total treatment / reutilization of wastewater that will reduce field water consumption and wastewater discharge.
- 1279 Fire Support - Developed an interface device that will provide digital linkage from the fire control panel tactical proficiency trainer to the single-channel ground and airborne radio system and will enhance the training value of the trainer by allowing it to fully emulate the Multiple Launch Rocket System (MLRS) launcher fire control panel. Fabricated and tested clad gun barrels for M240 system and tested cladding procedure to double the barrel life. Developed, tested and provided a fielding strategy for an improved system to contain tritium gas and tritiated water from damaged radioluminescent light sources.
- 3410 Intelligence and Electronic Warfare - Developed system integration, test, verification and validation plan and began hardware design and development for cost and supportability upgrades to the Improved Target Acquisition System - fire control subsystem and Improved Bradley Acquisition System - missile control subsystem. Replaced key SATCOM components of the TROJAN SPIRIT II to increase the efficiency of existing satellite bandwidth utilization and prepare for the migration to the emerging Warfighter Information Network. Upgraded signal data processor cards for retrofit of the Sentinel system by using commercial grade parts.
- 1021 Maneuver - Demonstrated technology to automate balancing of turbine engine components to reduce cycle time by 80% over manual balancing. Developed, demonstrated and implemented a mobile seven axis machining system to improve the repair and overhaul capabilities of Anniston Army Depot (ANAD), to include designing and developing the machining system, designing the base, and optimizing the system to meet ANAD mobile machining requirements. Developed a low cost corrosion mitigating technique for components such as frame rails found on tactical wheeled vehicles that have corrosion problems resulting in costly premature failures.
- 1798 Mobility - Conducted service life assessments of extended range track systems, established new rubber track component performance baselines, optimized performance of new rubber compounds, and identified wear/failure mechanisms in candidate materials to extend the life of rubber track components for ground vehicles.
- 331 Nuclear, Biological, Chemical - Evaluated and tested alternative testing agents for the Joint Lightweight Integrated Suit Technology (JLIST) to transition from a live chemical agent to a simulant to yield a safer, more reliable, quicker and more economic means for the maintenance and evaluation of chemical overgarments.

Total 28655

FY 2001 Planned Program

- 1099 Ammunition - Fabricate and test the less expensive .50 caliber training cartridge for the long range sniper rifle and transition to procurement.
- 7913 Aviation - Fabricate prototype hardware, install smart orifices, and conduct support tests for the high performance scalable landing gear shock strut that is less susceptible to damage. Develop cost avoidance, cycle time reduction, and information integration change agent strategies to improve the depot life cycle repair environment through the Rotary Wing Aircraft Sustainment Project. Integrate and test the new strapdown fiber optic attitude heading reference system which utilizes directional/vertical gyroscopes as a replacement for the current mechanical gyros used in cargo and utility helicopters. Complete engineering design and development, continue test article fabrication, and begin component testing of the new CH-47 dry rotor hub.
- 641 Command and Control - Re-establish a production capability for new AN/PRC-112 radios, enabling the production of new modules to be used as spares and repair parts at the depot level repair facilities, so that AN/PRC-112 radios already deployed can continue to be supported.
- 751 Combat Service Support - Correlate and validate new Meal, Ready to Eat (MRE) storage testing method with the existing longer term testing parameters, complete product tests and shelf stability evaluations, and transition to the Defense Logistics Agency (DLA) for procurement. Optimize the MRE's packaging to reduce the amount of materials required to package the MRE. Select supplier for and conduct fabric testing of the alternative water resistant, vapor permeable fabrics for the extended cold weather clothing system to reduce weight, improve cold weather protection, and reduce overall costs. Perform system testing and evaluation of the wastewater treatment system to treat laundry wastewater for reuse in latrines and showers and a total treatment / reutilization of wastewater that will reduce field water consumption and wastewater discharge.
- 293 Fire Support - Validate radial forging procedures for gun barrel preforms and demonstrate extended wear of clad M240 gun barrels.
- 4737 Intelligence and Electronic Warfare - Complete hardware design and development and unit testing for the cost and supportability upgrades to the Improved Target Acquisition System - fire control subsystem and Improved Bradley Acquisition System - missile control subsystem. Rewire and test upgraded Sentinel signal data processor upgrades and transition to the Sentinel processor family.
- 272 Maneuver - Conduct fatigue testing, metallurgical evaluation, and final demonstration for an automated system to simultaneously balance and laser machine components.
- 1912 Mobility - Demonstrate inspection equipment and techniques capable of producing new track vehicle rubber formulations to increase the life of rubber track components to 5000 miles by validating accelerated aging tests and life-service predictive models and finalizing production and field evaluation methods.

FY 2001 Planned Program (Continued)

- 283 Nuclear, Biological, Chemical - Implement the replacement testing agent for the Joint Lightweight Integrated Suit Technology (JLIST), completing the transition from a live chemical agent to a simulant to yield a safer, faster, more reliable, and more economical means for the maintenance and evaluation of chemical overgarments through vapor testing at high relative humidity, completing technical data, and transitioning to DLA for procurement.

- 549 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.

Total 18450

FY 2002 Planned Program

- 9343 Aviation - Revise the shock strut design to incorporate new smart orifices, fabricate final test hardware, and conduct final performance testing for the new high performance scalable landing gear shock strut for the Apache. Implement process changes and model process flow enhancements through the Rotary Wing Aircraft Sustainment Project (RWASP). Continue test article fabrication, complete component testing, begin flight testing and low rate initial production of the new CH-47 dry rotor hub that will have 75% fewer parts and 70% fewer special tools required to maintain the system.

- 220 Fire Support - Fabricate final prototypes and conduct final verification testing for the new radial forging procedures for gun barrel preforms and demonstrate extended wear of clad M240 gun barrels.

- 1880 Intelligence and Electronic Warfare - Perform software integration testing and formal qualification testing for the cost and supportability upgrades to the Improved Target Acquisition System - fire control subsystem and Improved Bradley Acquisition System - missile control subsystem.

- 635 Maneuver - Demonstrate a low cost corrosion mitigating technique for epoxy-coated High Mobility Multipurpose Wheeled Vehicle (HMMWV) frame rails to prevent costly premature failures through treatment of test vehicles, testing treated, preparing final report, and training personnel for transition to field units and treatment implementation.

- 2296 Mobility - Prove out 5000 mile production rubber track candidates and test methods on T158, T157, and T156 track systems and implement on Abrams tank, and Bradley Fighting Vehicle.

Total 14374

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

C. Acquisition Strategy: Not applicable for this item.

D. Schedule Profile: Not applicable for this item.