

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

February 2002

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs

| COST (In Thousands) | FY 2001 Actual | 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 | 95689 | 166449 | 54465 | 23798 | 16291 | 13112 | 13328 | Continuing | Continuing |
| 330 ABRAMS TANK IMPROVE PROG | 76687 | 166136 | 54465 | 23798 | 16291 | 13112 | 13328 | Continuing | Continuing |
| 344 FIRE SPT TM VEH INTG | 6069 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19146 |
| 371 BRADLEY BASE SUSTAIN | 1958 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88115 |
| 718 GRND COMBAT VEHICLE HTI | 8585 | 215 | 0 | 0 | 0 | 0 | 0 | 0 | 25284 |
| C64 DC64 | 2390 | 98 | 0 | 0 | 0 | 0 | 0 | 0 | 9488 |

A. Mission Description and Budget Item Justification: This Program Element (PE) responds to vehicle deficiencies identified during Desert Storm, continues technical system upgrades, and addresses needed evolutionary enhancements to tracked combat (Abrams and Bradley) and tactical (Bradley Fire Support (FIST)) vehicles. This PE provides combat effectiveness and Operating and Support (O&S) cost reduction enhancements for the Abrams Tank through a series of product improvements to the current M1A1 and M1A2 vehicles. Additional improvements allow the M1A2 System Enhancement Package (SEP) tank to operate effectively with the M2A3 Bradley. This PE also addresses future product improvements to the M2A3, and the Abrams tank fleet. Common Digitization (CD) efforts will work towards the resolution of common digitization concerns that impact all current and future Ground Combat Support Systems (GCSS). Included are Real Time Common Operating Environment (RTCOE) Expansion, and Abrams/Bradley Objective Integrated Command, Control and Communication (IC3) Program. These systems support the Legacy transition path of the Transformation Campaign Plan.

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| <u>B. Program Change Summary</u> | FY 2001 | FY 2002 | FY 2003 |
|--|---------|---------|---------|
| Previous President's Budget (FY2002 PB) | 100575 | 195602 | 34593 |
| Appropriated Value | 101523 | 167941 | 0 |
| Adjustments to Appropriated Value | 0 | 0 | 0 |
| a. Congressional General Reductions | 0 | -1492 | 0 |
| b. SBIR/STTR | -2992 | 0 | 0 |
| c. Omnibus or Other Above Threshold Reprogrammings | 0 | 0 | 0 |
| d. Below Threshold Reprogramming | -1913 | 0 | 0 |
| e. Rescissions | -929 | 0 | 0 |
| Adjustments to Budget Years Since FY2002 PB | 0 | 0 | 19872 |
| Current Budget Submit (FY 2003 PB) | 95689 | 166449 | 54465 |

Change Summary Explanation:

FY01 funds reprogrammed to higher priority requirements.
 FY03 Abrams program increased to accelerate the Abrams -Crusader Common Engine (ACCE) program.

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

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| | | | | | | | | | |
|--|-------------------|---------------------|---------------------|--|---------------------|---------------------|---------------------|-----------------------|------------|
| BUDGET ACTIVITY 7 - Operational system development | | | | PE NUMBER AND TITLE 0203735A - Combat Vehicle Improvement Programs | | | | PROJECT 330 | |
| COST (In Thousands) | FY 2001 Actual | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate | Cost to Complete | Total Cost |
| 330 ABRAMS TANK IMPROVE PROG | 76687 | 166136 | 54465 | 23798 | 16291 | 13112 | 13328 | Continuing | Continuing |

A. Mission Description and Budget Item Justification: This project funds improvements to the Abrams Main Battle Tank (M1 series). The Abrams mission is to close with and destroy enemy forces on the integrated battlefield using firepower, maneuver, and shock effect. The M1A2 was the Army's first fully digital ground combat system developed under this project. It was succeeded by the M1A2 SEP, which is the current production model. SEP refers to a System Enhancement Package which upgrades the M1A2's computer systems and its night vision capabilities. The SEP tank has better microprocessors, color flat panel displays, more memory capacity, better Soldier-Machine Interface (SMI), improved thermal imaging capabilities, and a new open operating system designed to run the Army's Common Operating Environment (ACOE) software [funded in PE 0203758A]. Post SEP development efforts are focusing on improvements yielding significant life cycle cost reductions or survivability enhancements. The Abrams-Crusader Common Engine (ACCE) program, which was awarded in September 2000, is the most significant of these efforts. The Abrams – Crusader Common Engine (ACCE) is a critical cornerstone in the Army's (Abrams) Recapitalization Program. All M1A2SEP tanks will be equipped with the ACCE. The objective is a lighter, more reliable, more fuel efficient, and easier-to-repair engine. The ACCE program will yield the greatest return on investment by significantly reducing both the Operations and Support (O&S) burden and the armored forces logistics footprint. This system supports the Legacy transition path of the Army Transformation Campaign Plan (TCP).

FY 2001 Accomplishments:

- 9357 Continued M1A2 SEP Live Fire and Survivability Test, including live fire shots, simulation and purchase of system support package
- 964 Provided Government Support
- 54982 Continued Abrams -Crusader Common Engine (ACCE) Program
- 2305 Continued redesign of turret and hull network boxes and built-in test embedded diagnostic program for the M1A1 fleet
- 2722 Continued lightweight vehicle track development
- 6357 System Technical Support (STS) for the Abrams program

Total 76687

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

February 2002

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PE NUMBER AND TITLE

0203735A - Combat Vehicle Improvement Programs

PROJECT

330

FY 2002 Planned Program

- 163141 Abrams-Crusader Common Engine (ACCE) Program
- 1400 Abrams Legacy Fleet Embedded Diagnostics
- 1400 Lightweight Track Improvement
- 195 Abrams M1A2 SEP Live Fire and Survivability Test

Total 166136

FY 2003 Planned Program

- 13600 M1A2 SEP Live Fire and Survivability Test
- 500 Vehicle Integrated Defense System (VIDS) (M1A1)
- 34165 Abrams-Crusader Common Engine (ACCE) Program
- 6200 System Technical Support (STS) to address Abrams Continuing Electronic Obsolescence Issues

Total 54465

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February 2002

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs PROJECT
330

| <u>B. Other Program Funding Summary</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> | <u>To Compl</u> | <u>Total Cost</u> |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|--------------------------|
| Abrams Upgrade Program (GA0750) | 462916 | 586137 | 376486 | 96891 | 0 | 0 | 0 | 0 | 5468055 |
| Abrams Vehicle Modification (GA0700) | 55476 | 81216 | 191413 | 531102 | 575178 | 550725 | 479016 | 1993900 | 4487671 |
| M1A1D Retrofit (GA0720) | 1883 | 11566 | 0 | 0 | 0 | 0 | 0 | 0 | 13449 |
| System Enhancement Pgm: SEP M1A2 (GA0730) | 58111 | 99357 | 123915 | 163415 | 194176 | 314805 | 366572 | 386518 | 1706869 |
| M1A2 Training Devices (GB1302) | 10407 | 11732 | 12061 | 12866 | 5784 | 0 | 0 | 0 | 61212 |
| Training Device Mod (GA5208) | 5282 | 5506 | 5504 | 5805 | 3351 | 3415 | 3478 | 83000 | 117969 |
| Initial Spares (GE0161) | 14671 | 23390 | 9952 | 11911 | 12125 | 12344 | 12564 | 113886 | 269888 |
| PE 0603854A (D505)* | 70000 | 54100 | 16500 | 0 | 0 | 0 | 0 | 0 | 154807 |

FY01 funds reprogrammed to higher priority requirements.

C. Acquisition Strategy: Honeywell is the prime contractor for the ACCE development program. General Dynamics Land Systems Division (GDLS) is the prime contractor for the vehicle integration effort.

| <u>D. Schedule Profile</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> | <u>FY 2006</u> | <u>FY 2007</u> |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Complete M1A2 SEP Live Fire Testing | | | 4Q | | | | |
| Award ACCE - GDLS Integration Contract | 4Q | | | | | | |
| ACCE Engine PDR | 3Q | | | | | | |
| ACCE Engine CDR | 4Q | | | | | | |
| GDLS Integration PDR | | 1Q | | | | | |
| GDLS Integration CDR | | 2Q | | | | | |
| First Engine To Test | | 3Q | | | | | |
| ACCE In Vehicle Testing | | | 2Q | | | | |
| Engine LRIP Contract Award | | | 3Q | | | | |
| Complete Abrams -Crusader Common Engine (ACCE) Contract | | | | 2Q | | | |

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs

PROJECT
330

| I. Product Development | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2001 Cost | FY 2001 Award Date | FY 2002 Cost | FY 2002 Award Date | FY 2003 Cost | FY 2003 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a . Prior Contracts | Various | Various | 618099 | 0 | | 0 | | 0 | | 0 | 618099 | 618099 |
| b . Abrams-Crusader Common Engine (ACCE) | C-CPAF | Honeywell International Phoenix, AZ | 0 | 29052 | 4Q | 116141 | 4Q | 15038 | 4Q | 0 | 160231 | 221665 |
| c . ACCE - GDLS Integration | SS-CPFFF | General Dynamics Sterling Heights, MI | 0 | 25930 | 4Q | 47000 | 4Q | 19127 | 4Q | 0 | 92057 | 92070 |
| d . BCIS Integration | SS-CPFF | General Dynamics Sterling Heights, MI | 3230 | 0 | | 0 | | 0 | | 0 | 3230 | 6275 |
| e . Other Contracts | Various | Various | 12801 | 9079 | 1-4Q | 1400 | 1-4Q | 6700 | 1-4Q | 0 | 29980 | 0 |
| | | | | | | | | | | | | |
| Subtotal: | | | 634130 | 64061 | | 164541 | | 40865 | | 0 | 903597 | 938109 |

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY
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PE NUMBER AND TITLE
0203735A - Combat Vehicle Improvement Programs

PROJECT
330

| II. Support Cost | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2001 Cost | FY 2001 Award Date | FY 2002 Cost | FY 2002 Award Date | FY 2003 Cost | FY 2003 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|--------------------------|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a . Gov't Support | MIPR | Various | 46033 | 965 | 1-4Q | 0 | | 0 | | 0 | 46998 | 0 |
| b . Embedded Diagnostics | MIPR | Various | 13299 | 2305 | 1-4Q | 1400 | 1-4Q | 0 | | 0 | 17004 | 0 |
| | | | | | | | | | | | | |
| Subtotal: | | | 59332 | 3270 | | 1400 | | 0 | | 0 | 64002 | 0 |

| III. Test and Evaluation | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2001 Cost | FY 2001 Award Date | FY 2002 Cost | FY 2002 Award Date | FY 2003 Cost | FY 2003 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a . Various Test Sites for Live Fire Testing | MIPR | Various | 46245 | 9356 | 1-4Q | 195 | 1-4Q | 13600 | 1-4Q | 0 | 69396 | 0 |
| | | | | | | | | | | | | |
| Subtotal: | | | 46245 | 9356 | | 195 | | 13600 | | 0 | 69396 | 0 |

ARMY RDT&E COST ANALYSIS(R-3)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

7 - Operational system development

0203735A - Combat Vehicle Improvement Programs

330

| IV. Management Services | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2001 Cost | FY 2001 Award Date | FY 2002 Cost | FY 2002 Award Date | FY 2003 Cost | FY 2003 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|-------------------------|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| | | | 0 | 0 | | 0 | | 0 | | 0 | 0 | 0 |
| Subtotal: | | | | | | | | | | | | |
| Project Total Cost: | | | 739707 | 76687 | | 166136 | | 54465 | | 0 | 1036995 | 938109 |