

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

February 2002

|  |         |  |          |          |          |          |          |                              |            |  |
|--|---------|--|----------|----------|----------|----------|----------|------------------------------|------------|--|
| <b>BUDGET ACTIVITY</b><br><b>5 - Engineering and manufacturing development</b> |         | <b>PE NUMBER AND TITLE</b><br><b>0604329A - Common Missile</b> |          |          |          |          |          | <b>PROJECT</b><br><b>013</b> |            |  |
| COST (In Thousands)  | FY 2001 | FY 2002  | FY 2003  | FY 2004  | FY 2005  | FY 2006  | FY 2007  | Cost to                      | Total Cost |  |
|  | Actual  | Estimate   | Estimate | Estimate | Estimate | Estimate | Estimate | Complete                     |            |  |
| 013 AIR TO GROUND COMMON MISSILE   | 4683    | 16592  | 29919    | 48485    | 64564    | 66009    | 71030    | 298300                       | 599582     |  |

**A. Mission Description and Budget Item Justification:** The Common Missile is an Objective Force missile system that provides Line of Sight (LOS), Non-Line of Sight (NLOS) and Beyond Line of Sight (BLOS) capabilities, including precision strike and fire and forget technologies, increased range, and increased lethality for both ground and air combat systems, such as Comanche Reconnaissance Helicopter (RAH-66), the Future Combat Systems (FCS), the Interim Armored Vehicle (IAV), the Apache Attack helicopter (AH-64) and the Bradley A3. The Common Missile maximizes the warfighters' operational flexibility by allowing them to effectively engage a variety of stationary and mobile targets on the digital battlefield, including advanced armor, bunkers, buildings, command and control vehicles, transporter/erector (SCUD) launchers and light armored vehicles. Another goal of the Common Missile is to minimize the logistics footprint of the combat force. Common Missile reduces the number of different types of missiles that will need to be shipped to and serviced in a combat zone, and allows flexibility in the location of resupply on the battlefield. Common Missile's modular design and continuous parallel technology insertion program will reduce life-cycle costs, including demilitarization, while ensuring the missile system continues to provide the required improvements to keep pace with needed capabilities and advancing threats. The Common Missile will replace the aging stocks of TOW and HELLFIRE families of missiles. Developmental cost is much less than that required to develop four separate missile systems. Funding ramp -up from from FY02 to FY03 is necessary for technology maturation and preliminary systems integration. This will be accomplished using SMART (simulation and modeling for acquisition, requirements and training) to begin systems integration efforts of the enabling subsystems, including multi-mode seekers, variable thrust propulsion and advanced warheads. In FY04, Common Missile will enter into the Systems Development and Demonstration (SDD) phase. Additionally, an MOU with the United Kingdom was signed 7 December 2001 for a cooperative development of the Common Missile. Common Missile supports the Army's transformation by providing a system with enhanced supportability and a significant increase in operational capability. The system supports the Legacy to Objective transition path of the Transformation Campaign (TCP).

**FY 2001 Accomplishments:**

- 3707 Initiated Risk Reduction engineering effort on seeker, warhead, propulsion and platform integration
  - 976 Initiated Systems Engineering - Risk Reduction effort for testbed, warhead/rocket motor design and test, and GPS/IMU evaluation
- Total 4683

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**FY 2002 Planned Program**

- 11809 Continue Risk Reduction engineering effort on seeker, warhead, propulsion and platform integration
- 4783 Continue Systems Engineering - Risk Reduction development of multi-sensor testbed, tri-mode seeker, GPS/IMU, controllable propulsion and enhanced multi-functional warheads

Total 16592

**FY 2003 Planned Program**

- 24894 Complete Risk Reduction engineering effort on seeker, warhead, propulsion and platform integration
- 5025 Complete Systems Engineering - Risk Reduction evaluation of sensor models, geometric/performance models, perform warhead lethality, and continue development of seeker, sensor, propulsion and warhead technologies

Total 29919

| <b><u>B. Program Change Summary</u></b>        | FY 2001 | FY 2002 | FY 2003 |
|--|---------|---------|---------|
| Previous President's Budget (FY2002 PB)        | 4923    | 16731   | 35589   |
| Appropriated Value                             | 4969    | 16731   | 0       |
| Adjustments to Appropriated Value              | 0       | 0       | 0       |
| a. Congressional General Reductions            | 0       | -139    | 0       |
| b. SBIR/STTR                                   | -146    | 0       | 0       |
| c. Omnibus or Other Above Threshold Reductions | 0       | 0       | 0       |
| d. Below Threshold Reprogramming               | -94     | 0       | 0       |
| e. Recissions                                  | -46     | 0       | 0       |
| Adjustments to Budget Years Since FY2002 PB    | 0       | 0       | -5670   |
| Current Budget Submit (FY 2003 PB)             | 4683    | 16592   | 29919   |

FY03 funding decrease a result of higher Army priorities.

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|---|---|-----------------------|

| <u>C. 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> |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-------------------|
| C70302: Common Missile                  | 0              | 0              | 0              | 0              | 0              | 0              | 40687          | Continue        | Continue          |

**D. Acquisition Strategy:** The Common Missile risk reduction effort used full and open competition. The SDD effort will be competed between the System Definition/Risk Reduction contractors.

| <u>E. 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> |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| <b>CONCEPT/TECH DEVELOP &amp; RISK REDUCTION</b>  |                |                |                |                |                |                |                |
| Contract Award Initial Designs                    | 4Q             |                |                |                |                |                |                |
| Requirements Flowdown/Trade Studies               | 4Q             |                |                |                |                |                |                |
| Design/Procure Tandem Warhead Hardware            |                | 1-2Q           |                |                |                |                |                |
| System Requirements Review                        |                | 2Q             |                |                |                |                |                |
| ESAF/Warhead Review                               |                | 4Q             |                |                |                |                |                |
| Propulsion Design Review                          |                | 4Q             |                |                |                |                |                |
| Baseline Design Review                            |                |                | 1Q             |                |                |                |                |
| Complete Performance Modeling & Virtual Prototype |                |                | 3Q             |                |                |                |                |
| Complete Initial Design CAD/CAE                   |                |                | 3Q             |                |                |                |                |
| Complete Simulation of System in Battlefield      |                |                | 4Q             |                |                |                |                |
| Milestone B Decision                              |                |                | 4Q             |                |                |                |                |
| <b>SYSTEM DEVELOPMENT AND DEMONSTRATION</b>       |                |                |                |                |                |                |                |
| Contract Award                                    |                |                |                | 1Q             |                |                |                |
| Preliminary Design Review                         |                |                |                |                | 1Q             |                |                |
| Critical Design Review                            |                |                |                |                | 3-4Q           |                |                |
| System Qualification                              |                |                |                |                |                | 2-4Q           |                |
| Limited User Test                                 |                |                |                |                |                |                | 2Q             |

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| <b>E. Schedule Profile (continued)</b> | <b>FY 2001</b> | <b>FY 2002</b> | <b>FY 2003</b> | <b>FY 2004</b> | <b>FY 2005</b> | <b>FY 2006</b> | <b>FY 2007</b> |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PRODUCTION AND DEPLOYMENT              |                |                |                |                |                |                |                |
| LLI IPR                                |                |                |                |                |                | 4Q             |                |
| LLI Award                              |                |                |                |                |                |                | 1Q             |
| Milestone C Decision                   |                |                |                |                |                |                | 4Q             |

## ARMY RDT&E COST ANALYSIS(R-3)

**February 2002**

**BUDGET ACTIVITY**  
**5 - Engineering and manufacturing development**

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| I. Product Development                           | Contract Method & Type | Performing Activity & Location                      | Total PYs Cost | FY 2001 Cost | FY 2001 Award Date | FY 2002 Cost | FY 2002 Award Date | FY 2003 Cost | FY 2003 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|---|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a . Prime Contracts (Risk Reduction)             | CPFF, Full & Open      | Raytheon, AZ;<br>Lockheed Martin, FL;<br>Boeing, AL | 0              | 900          | 4Q                 | 6137         | 1Q                 | 12690        | 1Q                 | 0                | 19727      | 0                        |
| b . Support Contracts (Risk Reduction)           | Various                | Various   | 0              | 1696         | 1-4Q               | 2956         | 1-4Q               | 4924         | 1-3Q               | 10995            | 20571      | 0                        |
| c . Development Engineering (Risk Reduction/SDD) | Various                | Various   | 0              | 1111         | 1-3Q               | 2716         | 1-4Q               | 7280         | 1-4Q               | 5925             | 17032      | 0                        |
| d . Prime Contracts (SDD)                        | TBD                    | TBD   | 0              | 0            |                    | 0            |                    | 0            |                    | 418173           | 418173     | 0                        |
| <b>Subtotal:</b>                                 |                        |   | 0              | 3707         |                    | 11809        |                    | 24894        |                    | 435093           | 475503     | 0                        |

| II. Support Cost | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2001 Cost | FY 2001 Award Date | FY 2002 Cost | FY 2002 Award Date | FY 2003 Cost | FY 2003 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|------------------|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a . SETA Support | TBD                    | TBD                            | 0              | 0            |                    | 300          | 1Q                 | 315          | 1Q                 | 8500             | 9115       | 0                        |
| <b>Subtotal:</b> |                        |                                | 0              | 0            |                    | 300          |                    | 315          |                    | 8500             | 9115       | 0                        |

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| III. Test and Evaluation              | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2001 Cost | FY 2001 Award Date | FY 2002 Cost | FY 2002 Award Date | FY 2003 Cost | FY 2003 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------------|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a . Prime Contract/Government Inhouse | TBD                    | TBD                            | 0              | 0            |                    | 0            |                    | 0            |                    | 28961            | 28961      | 0                        |
| Subtotal:                             |                        |                                | 0              | 0            |                    | 0            |                    | 0            |                    | 28961            | 28961      | 0                        |

| IV. Management Services                              | Contract Method & Type | Performing Activity & Location | Total PYs Cost | FY 2001 Cost | FY 2001 Award Date | FY 2002 Cost | FY 2002 Award Date | FY 2003 Cost | FY 2003 Award Date | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--------------------------------|----------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|------------------|------------|--------------------------|
| a . System Engineering/Proj Mgt (Risk Reduction/SDD) | Various                | Various                        | 0              | 976          | 1-4Q               | 4483         | 1-4Q               | 4710         | 1-4Q               | 75834            | 86003      | 0                        |
| Subtotal:  |                        |                                | 0              | 976          |                    | 4483         |                    | 4710         |                    | 75834            | 86003      | 0                        |

|                     |  |  |   |      |  |       |  |       |  |        |        |   |
|---------------------|--|--|---|------|--|-------|--|-------|--|--------|--------|---|
| Project Total Cost: |  |  | 0 | 4683 |  | 16592 |  | 29919 |  | 548388 | 599582 | 0 |
|---------------------|--|--|---|------|--|-------|--|-------|--|--------|--------|---|