

UNCLASSIFIED

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | | | | | | DATE February 1997 | | |
|---|-------------------|---------------------|---------------------|---------------------|--|---------------------|---------------------|------------------------------|---------------------|------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | | | | | PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development | | | | | |
| COST (In Thousands) | FY 1996 Actual | FY 1997 Estimate | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
| Total Program Element (PE) Cost | 0 | 2937 | 0 | 897 | 313993 | 437444 | 434029 | 206133 | Continuing | Continuing |
| D503 Crusader - ED | 0 | 0 | 0 | 0 | 311211 | 434690 | 433920 | 202648 | Continuing | Continuing |
| D509 ATCAS | 0 | 2937 | 0 | 398 | 1626 | 2647 | 0 | 0 | 0 | 7608 |
| D2KT Crusader Operational Test | 0 | 0 | 0 | 499 | 1156 | 107 | 109 | 3485 | Continuing | Continuing |
| <p><u>Mission Description and Budget Item Justification:</u> This new program element supports the engineering and manufacturing development efforts for the Crusader-ED program and Advanced Field Artillery System Operational Test. This element also supports the Advanced Towed Cannon Artillery System (ATCAS). The projects in this program support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.</p> | | | | | | | | | | |

Page 1 of 7 Pages
Exhibit R-2 (PE 0604854A)

UNCLASSIFIED

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | | | | | | DATE February 1997 | | |
|---|-------------------|---------------------|---------------------|--|---------------------|---------------------|---------------------|------------------------------|---------------------|------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | | | | PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development | | | | PROJECT D509 | | |
| COST (In Thousands) | FY 1996 Actual | FY 1997 Estimate | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
| D509 ATCAS | 0 | 2937 | 0 | 398 | 1626 | 2647 | 0 | 0 | 0 | 7608 |
| <p>A. <u>Mission Description and Justification:</u> Advanced Towed Cannon Artillery System (ATCAS) will provide the replacement for the M198 155mm Howitzer and achieve significant strategic and tactical mobility improvements. This is a joint program with the Marine Corps as the lead service funding the development of the basic howitzer. The Army will fund the research and development of the product improvements to include: Inertial Navigation System, Electric Drives for Automated Elevation and Deflection Control, a Semi-Automated Loader, Laser Ignition System and Digital Direct Fire Sight.</p> <p><u>Acquisition Strategy:</u> To develop and integrate the product improvements on the USMC-developed howitzer. Development will be primarily by subcontract, while integration is expected to be done by the howitzer prime contractor. The development of the digital fire control will leverage the demonstration hardware developed as part of the Rapid Force Projection Initiative (RFPI) program and software developed by PM Paladin.</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 1000 Perform P3I integration efforts on to the LW155 EMD Howitzer • 400 Continue engineering efforts to incorporate the laser ignition system in the towed platform • 915 Create LW towed howitzer and P3I component simulations to reduce technical risk and evaluate engineering change proposals • 550 Conduct a 52Caliber trade-off study to determine cost, weight, reliability tradeoffs if a 52cal cannon assembly were applied to the LW155 Howitzer • 72 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs <p>Total 2937</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 398 Initiate integrated Early User Test /Engineering Development <p>Total 398</p> | | | | | | | | | | |
| Project D509 | | | | Page 2 of 7 Pages | | | | Exhibit R-2 (PE 0604854A) | | |

UNCLASSIFIED

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | | | | | | | | DATE February 1997 | | | | | | | |
|--|--|--|--|--|--|----------------|----------------|----------------|----------------|------------------------------|----------------|----------------|----------------|--------------|---------|---------|---------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | | | | | PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development | | | | | PROJECT D509 | | | | | | | |
| B. <u>Project Change Summary</u> | | | | | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | | | | | | | | | |
| FY 1997 President's Budget | | | | | 0 | 0 | 0 | 412 | | | | | | | | | |
| Appropriated Value | | | | | 2937 | | | | | | | | | | | | |
| Adjustments to Appropriated Value | | | | | | | | | | | | | | | | | |
| FY 1998 President's Budget Request | | | | | 0 | 2937 | 0 | 398 | | | | | | | | | |
| Change Summary Explanation: Funding: FY 1997(+2937) Congressional increase to support the joint of LW155 Howitzer Program. | | | | | | | | | | | | | | | | | |
| C. <u>Other Program Funding Summary</u> | | | | | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>To</u> | <u>Total</u> | | | |
| | | | | | | | | | | | | | <u>Compl</u> | <u>Cost</u> | | | |
| RDTE, Marine Corps, PE 060635, C2112 | | | | | 14,392 | 13,269 | 35,303 | 33,915 | 8,624 | | | | 71,558 | | | | |
| Procurement Marine Corps, BLIN 218500 | | | | | | | | | | | 7,590 | 106,359 | 148,435 | 142,081 | 142,034 | 198,578 | 745,077 |
| Procurement, Army WTCV, SSN G01700 | | | | | | | | | | | 4631 | | | Cont | Cont | | |
| D. <u>Schedule Profile</u> | | | | | <u>FY 1996</u> | | <u>FY 1997</u> | | | <u>FY 1998</u> | | | <u>FY 1999</u> | | | | |
| | | | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | |
| P3I Integration Efforts on the LW155 | | | | | X | | | | | | | | | | | | |
| Perform Laser Ignition Integration | | | | | X | | | | | | | | | | | | |
| Initiate/Develop Component Simulations | | | | | X | | | | | | | | | | | | |
| Conduct Trade off Study | | | | | X | | | | | | | | | | | | |
| Initiate Evaluation of Automated FC | | | | | X | | | | | | | | | | | | |

Project D509
Page 3 of 7 Pages
Exhibit R-2 (PE 0604854A)

UNCLASSIFIED

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | | | | DATE February 1997 | | | |
|---|--|--------------------------------|-------------------------------|--------------------------|--|----------------|----------------|-----------------------|----------------|-------------------------------|--------------------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | | | | | PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development | | | | | PROJECT D509 | |
| A. <u>Project Cost Breakdown</u> | | | | | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | | | |
| Government Engineering Support | | | | | | 1,365 | | 298 | | | |
| Contractor Engineering Support | | | | | | 1,400 | | | | | |
| Program Management Support | | | | | | 100 | | 100 | | | |
| SBIR/STTR | | | | | | 72 | | | | | |
| Total | | | | | | 2937 | | 398 | | | |
| B. <u>Budget Acquisition History and Planning Information</u> | | | | | | | | | | | |
| Performing Organizations | | | | | | | | | | | |
| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1996 | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>Budget to Complete</u> | <u>Total Program</u> |
| Product Development Organizations | | | | | | | | | | | |
| ARDEC-Picatinny | 1095 | Feb 97 | TBD | | 0 | | 885 | | 298 | 773 | 1956 |
| Benet Labs | 1095 | Feb 97 | TBD | | 0 | | 550 | | | | 550 |
| Contractor -TBD | SS/CPIF | Mar 97 | TBD | | 0 | | 1330 | | | 3,400 | 4730 |
| SBIR/STTR | | | | | | | 72 | | | | 72 |
| Support and Management Organizations | | | | | | | | | | | |
| PM-JLW | | Feb 97 | TBD | | 0 | | 100 | | 100 | 100 | 300 |
| Test and Evaluation Organizations: None | | | | | | | | | | | |
| Government Furnished Property: None | | | | | | | | | | | |
| Subtotal Product Development | | | | | | | 2837 | | 298 | 4173 | 7308 |
| Subtotal Support and Management | | | | | | | 100 | | 100 | 100 | 300 |
| Subtotal Test and Evaluation | | | | | | | | | | | |
| Total Project | | | | | | | 2937 | | 398 | 4273 | 7608 |
| <div style="display: flex; justify-content: space-between; margin-top: 20px;"> Project D509 Page 4 of 7 Pages Exhibit R-3 (PE 0604854A) </div> | | | | | | | | | | | |

UNCLASSIFIED

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | | | | | | DATE February 1997 | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------------|---------------------|---------------------|--|---------------------|---------------------|---------------------|------------------------------|---------------------|------------|--|----------------|----------------|----------------|----------------|---|---|---|---|-----|-----------------------------------|--|--|--|--|------------------------------------|---|---|---|-----|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | | | | PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development | | | | PROJECT D2KT | | | | | | | | | | | | | | | | | | | | | | |
| COST (In Thousands) | FY 1996 Actual | FY 1997 Estimate | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost | | | | | | | | | | | | | | | | | | | | |
| D2KT Crusader Operational Test | 0 | 0 | 0 | 499 | 1156 | 107 | 109 | 3485 | Continuing | Continuing | | | | | | | | | | | | | | | | | | | | |
| <p>A. <u>Mission Description and Justification:</u> Project D2KT Crusader Operational Test: Crusader operational testing will be conducted to answer issues relating to system effectiveness and suitability. Testing will be accomplished initially at section level (howitzer crew) and progress to battery and battalion levels to determine overall mission effectiveness and force structure suitability.</p> <p><u>Acquisition Strategy:</u> Not applicable</p> <p>FY 1996 Accomplishments: Project not funded in FY 96</p> <p>FY 1997 Planned Program: Project not funded in FY 97</p> <p>FY 1998 Planned Program: Project not funded in FY 98</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 499 Initiate integrated Early User Test/Engineering Development Tests. <p>Total 499</p> <p>B. <u>Project Change Summary</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 1996</u></th> <th style="text-align: center;"><u>FY 1997</u></th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> </tr> </thead> <tbody> <tr> <td>FY 1997 President's Budget Appropriated Value</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">499</td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>FY 1998 President's Budget Request</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">499</td> </tr> </tbody> </table> | | | | | | | | | | | | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | FY 1997 President's Budget Appropriated Value | 0 | 0 | 0 | 499 | Adjustments to Appropriated Value | | | | | FY 1998 President's Budget Request | 0 | 0 | 0 | 499 |
| | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FY 1997 President's Budget Appropriated Value | 0 | 0 | 0 | 499 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adjustments to Appropriated Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FY 1998 President's Budget Request | 0 | 0 | 0 | 499 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div style="display: flex; justify-content: space-between;"> Project D2KT Page 5 of 7 Pages Exhibit R-2 (PE 0604854A) </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

UNCLASSIFIED

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | | | | | | | | | | | DATE February 1997 | |
|--|---|----------------|----------------|----------------|----------------|---|----------------|----------------|----------------|---------------------|-----------------------|--------|-----------------------|---|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | | | | | | PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development | | | | | | | PROJECT D2KT | |
| C. Other Program Funding Summary | | | | | | | | | | | | | | |
| | | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>FY 2000</u> | <u>FY 2001</u> | <u>FY 2002</u> | <u>FY 2003</u> | <u>To Compl</u> | <u>Total Cost</u> | | | |
| RDTE A, Budget Activity 4, | | | | | | | | | | | | | | |
| PE 0603645, Project D409 AFAS | | 135724 | | | | | | | | | | 546347 | | |
| PE 0603645, Project DB88 FARV | | 45923 | | | | | | | | | | 127370 | | |
| PE 0603854, Project D505 Crusader - AD | | | 235795 | 322291 | 293920 | 47102 | | | | | | 899108 | | |
| RDTE A, Budget Activity 5, | | | | | | | | | | | | | | |
| PE 0604854, Project D503 Crusader - EMD | | | | | | 311211 | 434690 | 433920 | 202648 | Cont | | Cont | | |
| D. Schedule Profile | | | | | | | | | | | | | | |
| | | <u>FY 1996</u> | | | <u>FY 1997</u> | | | <u>FY 1998</u> | | | <u>FY 1999</u> | | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 |
| Initiate combined Early Developmental Testing/Early User Testing | | | | | | | | | | | | | | X |

Project D2KT

Page 6 of 7 Pages

Exhibit R-2 (PE 0604854A)

UNCLASSIFIED

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | | | | | | DATE February 1997 | |
|---|----------------|-------------|------------|------------|--|----------------|----------------|----------------|----------------|------------------------|----------------|
| BUDGET ACTIVITY 5 - Engineering and Manufacturing Development | | | | | PE NUMBER AND TITLE 0604854A Artillery Systems - Engineering Development | | | | | PROJECT D2KT | |
| A. <u>Project Cost Breakdown</u> | | | | | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | | | |
| Product Development | | | | | | | | | | | |
| Support and Management | | | | | | | | | | | |
| Test and Evaluation | | | | | | | | | 499 | | |
| Total | | | | | | | | | 499 | | |
| B. <u>Budget Acquisition History and Planning Information:</u> | | | | | | | | | | | |
| Performing Organizations | | | | | | | | | | | |
| Contractor or | Contract | | | | | | | | | | |
| Government | Method/Type | Award or | Performing | Project | Total | | | | | | |
| Performing | or Funding | Obligation | Activity | Office | Prior to | | | | | Budget to | Total |
| <u>Activity</u> | <u>Vehicle</u> | <u>Date</u> | <u>EAC</u> | <u>EAC</u> | <u>FY 1996</u> | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>Complete</u> | <u>Program</u> |
| Product Development Organizations: None | | | | | | | | | | | |
| Support and Management Organizations: None | | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | | |
| TECOM, YPG, | | | | | | | | | 499 | Cont | Cont |
| AZ, CSTA, APG, | | | | | | | | | | | |
| MD, Ft. Sill, OK, | | | | | | | | | | | |
| OPTEC, VA | | | | | | | | | | | |
| Government Furnished Property: None | | | | | | | | | | | |
| Subtotal Product Development | | | | | | | | | | | |
| Subtotal Support and Management | | | | | | | | | | | |
| Subtotal Test and Evaluation | | | | | | | | | 499 | Cont | Cont |
| Total Project | | | | | | | | | 499 | Cont | Cont |
| Project D2KT | | | | | | | | | | | |