| Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army | | | | | | | | | | | Date: February 2016 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>2040: *Research, Development, Test & Evaluation, Army* / BA 7: *Operational Systems Development* | | | | | R-1 Program Element (Number/Name)<br>PE 0603778A / *MLRS Product Improvement Program* | | | | | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2015** | **FY 2016** | **FY 2017 Base** | **FY 2017 OCO** | **FY 2017 Total** | **FY 2018** | **FY 2019** | **FY 2020** | **FY 2021** | **Cost To Complete** | **Total Cost** |
| Total Program Element | - | 17.852 | 18.397 | 9.663 | - | 9.663 | 3.778 | 3.840 | 3.848 | 5.066 | Continuing | Continuing |
| 093: *Multi-Launch Rocket System (MLRS)* | - | 14.974 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 14.974 |
| DX8: *HIMARS Product Improvement Program* | - | 2.878 | 1.355 | 9.663 | - | 9.663 | 3.778 | 3.840 | 3.848 | 5.066 | Continuing | Continuing |
| DZ8: *Long Range Precision Fires* | - | 0.000 | 17.042 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 17.042 |

**Note**

FY2017 funding for Long Range Precision Fires (LRPF) has been realigned to a new OSD-directed PE 0607134A, Project ES1.

**A. Mission Description and Budget Item Justification**

Project 093. The Multiple Launch Rocket System (MLRS) is a full spectrum, combat proven, all weather, 24/7, tracked weapon system. These precision strike weapon systems are organic/assigned to Field Artillery Brigades (FABs). The MLRS launcher provides critical missile precision strike, operational shaping fires, counterfire, and close support destructive and suppressive fires. In FY16 a third battalion of MLRS launchers will be added to United States Forces Korea (USFK). Army Prepositioned Stock requirements have increased to eight M270A1s in FY16. The launcher is complemented by the MLRS Family of Munitions (MFOM) to include the Guided Multiple Launch Rocket System (GMLRS), and the Army Tactical Missile System (ATACMS) Family of Munitions (AFOM), capable of engaging targets up to a range of 300 kilometers. The MLRS product improvement program provides funding for research, development, test, and integration efforts necessary for incorporation of advanced automotive, armament, and system hardware and software technologies, including Common Operating Environment (COE) and Network Integrated Evaluation (NIE), obsolescence mitigation, reliability improvements, and decreasing the logistics footprint. This effort includes performing technical assessments, concept studies, and risk reduction efforts for incorporation of future requirements. The MLRS product improvement program maintains compliance with intra-army interoperability and digital communications via joint variable message format.

Project DX8. The M142 High Mobility Artillery Rocket System (HIMARS) is a full spectrum, combat proven, all weather, 24/7 lethal and responsive, precision strike weapon system that fully supports more deployable, affordable and lethal, Brigade Combat Teams (BCT), Fires Brigades, Modular Forces, and Joint Expeditionary Forces. The HIMARS launcher is a C-130 transportable, wheeled, indirect fire, rocket/missile launcher capable of firing all rockets and missiles in the current and future Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM) and Army Tactical Missile System (ATACMS) Family of Munitions (AFOM) engaging targets with precision out to ranges of 300 kilometers. The HIMARS satisfies the Army's digitization requirements by interfacing with the Advanced Field Artillery Tactical Data System (AFATDS) fire support command and control system. The HIMARS product improvement program provides funding for research, development test, and integration efforts necessary for incorporation of advanced automotive, armor, armament, life cycle enhancements, system hardware and software technologies, including Common Operating Environment (COE) and Network Integrated Evaluation (NIE), obsolescence mitigation, reliability improvements and decreasing the logistics footprint. This effort includes performing technical assessments, concept studies, and risk reduction efforts for incorporation of future requirements. The

| Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army | Date: February 2016 |
|---|---|
| **Appropriation/Budget Activity**<br>2040: *Research, Development, Test & Evaluation, Army I* BA 7: *Operational Systems Development* | **R-1 Program Element (Number/Name)**<br>PE 0603778A *I MLRS Product Improvement Program* |

HIMARS product improvement program maintains compliance with Intra-Army Interoperability and Digital Communications. Army prepositioned stock requirement has increased to twenty-four HIMARS in FY16. The HIMARS was deployed to Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) with great success by both US Army and Marine Corps units.

Project DZ8. LRPF is being developed as a non-cluster munition to provide Joint Force Command with a 24/7 all weather long-range fires capability without placing aircraft and crews at risk. FY2017 funding for Long Range Precision Fires (LRPF) has been realigned to a new OSD-directed PE 0607134A, Project ES1.

| B. Program Change Summary ($ in Millions) | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 17.103 | 18.397 | 49.986 | - | 49.986 |
| Current President's Budget | 17.852 | 18.397 | 9.663 | - | 9.663 |
| Total Adjustments | 0.749 | 0.000 | -40.323 | - | -40.323 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | 1.400 | - | | | |
| • SBIR/STTR Transfer | -0.651 | - | | | |
| • Adjustments to Budget Years | - | - | -40.323 | - | -40.323 |

**Change Summary Explanation**

FY2015 Below Threshold Reprogramming (BTR) in the amount of $1.400 million was received from Program Element 0205778A Project EG2 into Project 093 to support Improved Armor Cab (IAB).

FY2017 funding for Long Range Precision Fires (LRPF) has been realigned to a new OSD-directed PE 0607134A, Project ES1, funding adjustment reflects this change.

| Exhibit R-2A, RDT&E Project Justification: PB 2017 Army | | | Date: February 2016 |
|---|---|---|---|
| Appropriation/Budget Activity<br>2040 / 7 | R-1 Program Element (Number/Name)<br>PE 0603778A / *MLRS Product Improvement Program* | Project (Number/Name)<br>093 / *Multi-Launch Rocket System (MLRS)* | |

| COST ($ in Millions) | Prior Years | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 093: *Multi-Launch Rocket System (MLRS)* | - | 14.974 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 14.974 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**Note**

FY2015 Below Threshold Reprogramming (BTR) in the amount of $1.400 million was received from Program Element 0205778A Project EG2 into Project 093 to support Improved Armor Cab (IAB).

**A. Mission Description and Budget Item Justification**

The Multiple Launch Rocket System (MLRS) is a full spectrum, combat proven, all weather, 24/7, tracked weapon system. These precision strike weapon systems are organic/assigned to Field Artillery Brigades (FABs). The MLRS launcher provides critical missile precision strike, operational shaping fires, counterfire, and close support destructive and suppressive fires. In FY16 a third battalion of MLRS launchers will be added to United States Forces Korea (USFK). Army Prepositioned Stock requirements have increased to eight M270A1s in FY16. The launcher is complemented by the MLRS Family of Munitions (MFOM) to include the Guided Multiple Launch Rocket System (GMLRS), and the Army Tactical Missile System (ATACMS) Family of Munitions (AFOM), capable of engaging targets up to a range of 300 kilometers. The MLRS product improvement program provides funding for research, development, test, and integration efforts necessary for incorporation of advanced automotive, armament, and system hardware and software technologies, including Common Operating Environment (COE) and Network Integrated Evaluation (NIE), obsolescence mitigation, reliability improvements, and decreasing the logistics footprint. This effort includes performing technical assessments, concept studies, and risk reduction efforts for incorporation of future requirements. The MLRS product improvement program maintains compliance with intra-army interoperability and digital communications via joint variable message format.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| ***Title:*** MLRS Product Improvement Program | 14.974 | - | - |
| ***Description:*** The MLRS product improvement program ensures compliance as defined in the Department of Defense (DoD) Information Technology Standards. Funding is provided to several government agency laboratories each fiscal year in support of this program. Support efforts also include Enhanced Command and Control (EC2), interoperability certifications, obsolescence mitigation, increased crew protection, automotive updates and hardware/software enhancements, and information assurance compliance. All efforts are directed toward preservation of platform viability and readiness to accept technology insertion as capability enhancements and obsolescence mitigations are developed.<br>Perform Command, Control, Communications, Computers and Intelligence (C4I)/interoperability certification tests, improve operational timeline, and conduct network interoperability testing/certification. Perform technical assessments, concept studies, obsolescence mitigation, crew protection, automotive and hardware/software enhancements, and risk reduction. | | | |
| ***FY 2015 Accomplishments:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>093 / *Multi-Launch Rocket System (MLRS)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| Completed testing for Improved Armored Cab (IAC) that includes system level live fire testing, missile firing, user testing with field exercises and automotive/environmental testing. Continue preparation for award of production contract for IAC. Completed Critical Design Review (CDR) for the Fire Control System Upgrade (FCS-U) and built protoypes to conduct qualification and certification tests. Integrate FCS-U hardware with the Government developed FCS Software that replaces aging contractor developed software. Additional activities include FCS-U qualification tests, C4I/interoperability and network interoperability certification and maintenance. Redesign subsystems as required to mitigate obsolescence. Continue to improve system design and development hardware and software integration with upcoming C2 initiatives to include the COE and the NIE. Incorporate new assurance requirements into system software and evaluate Information Assurance (IA) performance. | | | |
| **Accomplishments/Planned Programs Subtotals** | 14.974 | - | - |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • C67500000: *MLRS Mods (C67500)* | 10.380 | 35.970 | 34.704 | - | 34.704 | 36.771 | 37.312 | 46.698 | 46.968 | Continuing | Continuing |
| • CA0265000: *MLRS Mod Initial Spares (CA0265)* | 1.087 | 1.067 | 1.676 | - | 1.676 | 1.089 | 1.105 | - | - | 0 | 6.024 |

**Remarks**

**D. Acquisition Strategy**

The MLRS product improvement program conducts concept studies to support obsolescence mitigation, automotive updates, and hardware/software enhancements. Development efforts underway include EC2 and efforts supporting interoperability certifications, information assurance compliance, IAC, and mitigating obsolescence of the Fire Control System through the FCS-U effort. The IAC effort enhances the level of crew protection. A contract was awarded following a competitive bid process (full and open competition) to ensure best value for the government. Seven prototype cabs have been delivered and integrated onto the launchers; testing was completed in FY15. The FCS-U is driven by the need to mitigate obsolete electronic components that are being sustained through life of type purchases. These purchased components will be exhausted, thus requiring an update to the design. This update to the design will preserve current and future capability of firing the complete set of MLRS family of munitions per the Operational Requirements Document (ORD). The FCS-U development effort began in FY13, utilizing the Industrial Engineering Services (IES) contract that was previously sole source awarded.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>093 / *Multi-Launch Rocket System (MLRS)* |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Government Program Management | Various | PFRMS Proj Ofc, Redstone Arsenal, Alabama : Redstone Arsenal, Alabama | 8.249 | 0.706 | Oct 2014 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| | | **Subtotal** | 8.249 | 0.706 | | - | | - | | - | | - | - | - | - |

**Remarks**

PFRMS - Precision Fires Rocket and Missile Systems

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Government Agencies OGA | MIPR | FT SILL OK, CECOM-NJ AMRDEC-RSA AL, : various | 16.245 | 0.863 | Oct 2014 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| MLRS IAC | C/CPFF | Lockheed Martin : Grand Prairie, TX | 28.338 | 2.160 | Oct 2014 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| MLRS FCS Development | SS/CR | Lockheed Martin : Grand Prairie, TX | 60.367 | 9.833 | Oct 2014 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| | | **Subtotal** | 104.950 | 12.856 | | - | | - | | - | | - | - | - | - |

**Remarks**

C CPFF - Competitive Cost-Plus Fixed-Fee
SS CR - Sole Source Cost
AMRDEC - U.S. Army Aviation and Missile Research Development and Engineering Center
RSA AL - Redstone Arsenal, Alabama
CECOM - United States Army Communication - Electronics Command
MIPR - Military Interdepartmental Purchase Request

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army | | | Date: February 2016 |
|---|---|---|---|
| Appropriation/Budget Activity<br>2040 / 7 | R-1 Program Element (Number/Name)<br>PE 0603778A / *MLRS Product Improvement Program* | Project (Number/Name)<br>093 / *Multi-Launch Rocket System (MLRS)* | |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Support Contract | Various | Multiple : Multiple | 4.410 | 0.424 | Dec 2015 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| | | **Subtotal** | 4.410 | 0.424 | | - | | - | | - | | - | - | - | - |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Support, Joint Interoperability Test Certificate | MIPR | CTSF, Ft. Hood : Texas | 9.724 | 0.988 | Dec 2014 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| | | **Subtotal** | 9.724 | 0.988 | | - | | - | | - | | - | - | - | - |

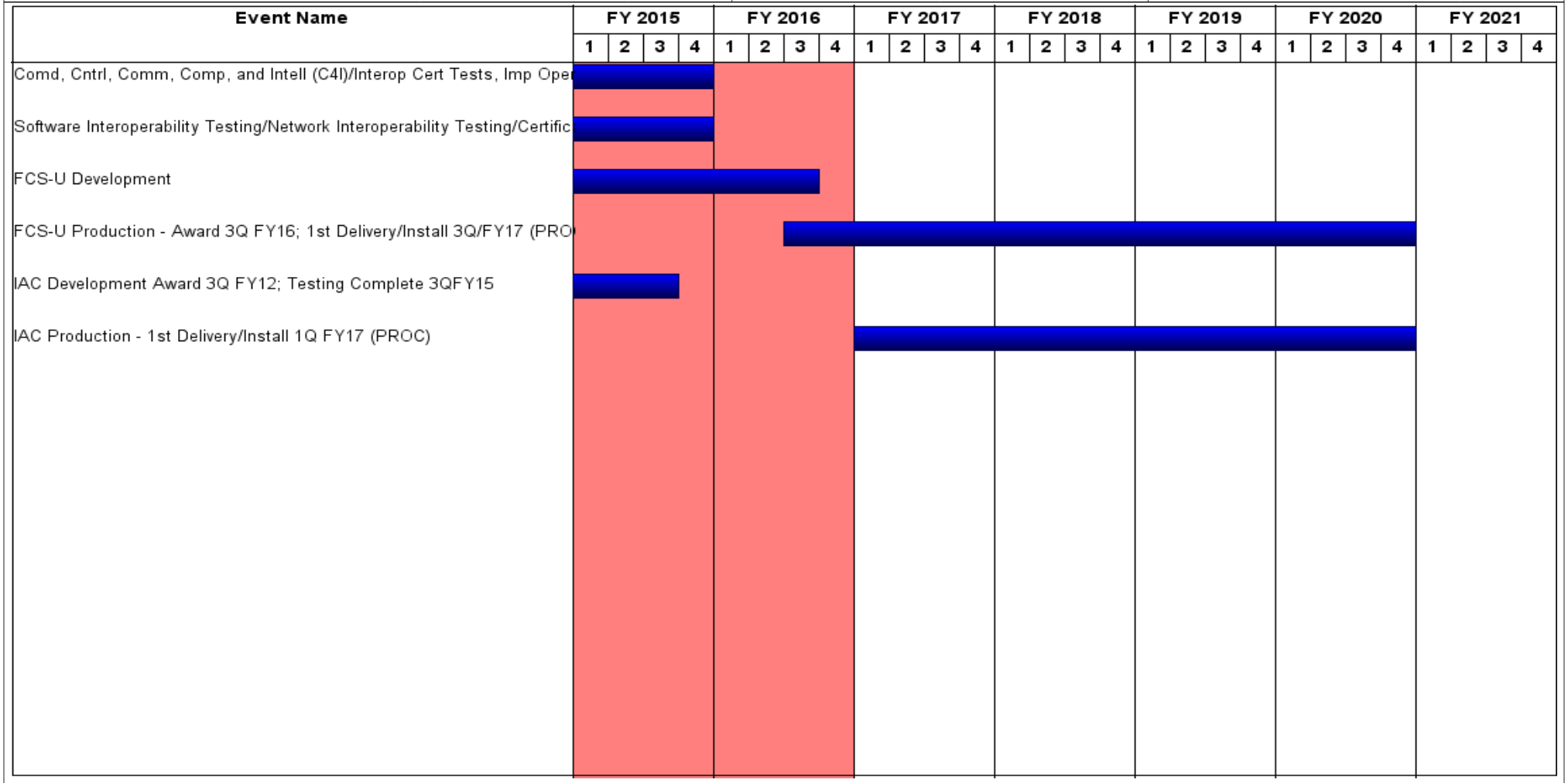
**Remarks**

CTSF - Central Technical Support Facility

| | Prior Years | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 127.333 | 14.974 | | 0.000 | | - | | - | | - | - | - | - |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>093 / *Multi-Launch Rocket System (MLRS)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>093 / *Multi-Launch Rocket System (MLRS)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| Comd, Cntrl, Comm, Comp, and Intell (C4I)/Interop Cert Tests, Imp Oper Timeline | 1 | 2010 | 4 | 2015 |
| Software Interoperability Testing/Network Interoperability Testing/Certification | 1 | 2010 | 4 | 2015 |
| FCS-U Development | 1 | 2013 | 3 | 2016 |
| FCS-U Production - Award 3Q FY16; 1st Delivery/Install 3Q/FY17 (PROC) | 3 | 2016 | 4 | 2020 |
| IAC Development Award 3Q FY12; Testing Complete 3QFY15 | 3 | 2012 | 3 | 2015 |
| IAC Production - 1st Delivery/Install 1Q FY17 (PROC) | 1 | 2017 | 4 | 2020 |

**Note**

C4I interoperability certification tests, improved operational timeline.

| Exhibit R-2A, RDT&E Project Justification: PB 2017 Army | | | Date: February 2016 |
|---|---|---|---|
| Appropriation/Budget Activity<br>2040 / 7 | R-1 Program Element (Number/Name)<br>PE 0603778A / *MLRS Product Improvement Program* | Project (Number/Name)<br>DX8 / *HIMARS Product Improvement Program* | |

| COST ($ in Millions) | Prior Years | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DX8: *HIMARS Product Improvement Program* | - | 2.878 | 1.355 | 9.663 | - | 9.663 | 3.778 | 3.840 | 3.848 | 5.066 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**A. Mission Description and Budget Item Justification**

The M142 High Mobility Artillery Rocket System (HIMARS) is a full spectrum, combat proven, all weather, 24/7 lethal and responsive, precision strike weapon system that fully supports more deployable, affordable and lethal, Brigade Combat Teams, Fires Brigades, Modular Forces, and Joint Expeditionary Forces. The HIMARS launcher is a C-130 transportable, wheeled, indirect fire, rocket/missile launcher capable of firing all rockets and missiles in the current and future Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM) and Army Tactical Missile System (ATACMS) Family of Munitions (AFOM) engaging targets with precision out to ranges of 300 kilometers. The HIMARS satisfies the Army's digitization requirements by interfacing with the Advanced Field Artillery Tactical Data System (AFATDS) fire support command and control system. The HIMARS product improvement program provides funding for research, development, test and integration efforts necessary for incorporation of advanced automotive, armor, armament, life cycle enhancements, system hardware and software technologies, including Common Operating Environment (COE) and Network Integrated Evaluation (NIE), obsolescence mitigation, reliability improvements, and decreasing the logistics footprint. This effort includes performing technical assessments, concept studies, and risk reduction efforts for incorporation of future requirements. The HIMARS product improvement program maintains compliance with Intra-Army Interoperability and Digital Communications. Army prepositioned stock requirements has increased to twenty-four HIMARS in FY16. The HIMARS was deployed to Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) with great success by both U.S. Army and Marine Corps units.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| ***Title:*** MLRS Production Improvement Program (PIP)-HIMARS PIP | 2.878 | 1.355 | 9.663 |
| ***Description:*** Improve system design and develop hardware and software integration with upcoming command and control initiatives to include the COE and the NIE. Perform technical assessments, concept studies, cost reduction, risk reduction, field issue resolution and required documentation concerning upgrades to Enhanced Command and Control (EC2), improved initialization, hardware and software obsolescence mitigation, tactical fire control, embedded training, launcher loader module electric drive, diagnostics/prognostics, alternate coupling, situational awareness, long range communication, automotive chassis life cycle enhancements and future munitions integration. | | | |
| ***FY 2015 Accomplishments:***<br>The focus of the FY15 HIMARS Product Improvement Program was to continue Software Modification Version 8.0 (SW MOD 8.0) software and hardware integration, conduct software testing and debugging, conduct missile firings and field exercises to validate software and obtain a software material release of the SW MOD 8.0 software that mitigates software obsolescence of the Fire Control System. Maintain Command, Control, Communications, and Intelligence (C4I) and network interoperability certification. | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>DX8 / *HIMARS Product Improvement Program* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| Conducted technical assessments and concept studies in the areas of automotive and hardware/software technologies to support evolving mission requirements, planned for technology insertion, and continued obsolescence mitigation. Improved system design and developed hardware and software integration with upcoming Command and Control (C2) initiatives to include the (COE) and (NIE), development and implementation of Global Positioning System (GPS).<br>***FY 2016 Plans:***<br>The focus of the FY16 HIMARS Product Improvement Program is to complete testing, certification, and software material release approval of SW Mod 8.0 that will enable fielding to start in FY16. Maintain C4I and network interoperability certification. Conduct technical assessments and concept studies in the areas of automotive and hardware/software technologies to support evolving mission requirements, planning for technology insertion, and continued obsolescence mitigation. Improve system design and develop hardware and software integration with the upcoming C2 initiatives to include the (COE) and (NIE), development and implementation of Global Positioning System (GPS) M-Code improvements.<br>***FY 2017 Plans:***<br>The FY17 HIMARS Product Improvement Program will begin development, testing and certification of Software Modification Version 8.1 to enable fielding of Version 8.1 in FY18. Version 8.1 will implement capabilities for Insensitive Munitions, improve the Ignition Safety Device, and correct minor defects from the previous Version 8.0 software. The Product Office will continue to address questions, requests from units in the field on Software Version 8.0 as well as make required modifications. Integrate and test the Wireless Vehicle Intercom System that will enhance operation and safety during mission reload and conduct of fire missions. Develop and document requirements for GPS-M Code to meet DoD requirement and conduct testing of potential future concepts. Review tactical considerations for replacing the High Frequency radio with SATCOM radios. Maintain C4I and network interoperability certification. Conduct technical assessments and concept studies in the areas of automotive and hardware/ software technologies to support evolving mission requirements, planning for technology insertion, and continued obsolescence mitigation. Improve system design and develop hardware and software integration with the upcoming C2 initiatives to include the (COE) and (NIE), development. | | | |
| **Accomplishments/Planned Programs Subtotals** | 2.878 | 1.355 | 9.663 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • C67501: *HIMARS Modifications (C67501)* | 6.008 | 3.148 | 1.847 | - | 1.847 | 9.566 | 10.456 | 12.768 | 6.320 | Continuing | Continuing |

**Remarks**

| Exhibit R-2A, RDT&E Project Justification: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>DX8 / *HIMARS Product Improvement Program* |

**D. Acquisition Strategy**

The HIMARS Product Improvement Program conducts concept studies to support obsolescence mitigation, automotive updates, and hardware/software enhancements. Development efforts underway include Enhanced C2 and efforts supporting interoperability certifications, information assurance compliance, and mitigating obsolescence of the fire control system on the M142 HIMARS. The HIMARS follow-on technology insertion efforts include automotive chassis life cycle enhancements, fire control system obsolescence mitigation and associated enhancements to training devices as improvements when applicable.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>DX8 / *HIMARS Product Improvement Program* |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Government Program Management | TBD | PFRMS Project Office, Redstone Arsenal, Alabama : Various | 0.050 | 0.137 | Oct 2014 | 0.289 | Oct 2015 | 0.400 | Oct 2016 | - | | 0.400 | Continuing | Continuing | 0 |
| | | **Subtotal** | 0.050 | 0.137 | | 0.289 | | 0.400 | | - | | 0.400 | - | - | 0.000 |

**Remarks**

PFRMS - Precision Fires Rocket and Missile Systems; C - Competitive

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Government Agencies (OGA) | MIPR | AMCOM, GSA, RSA : Various | 0.075 | 0.193 | Oct 2014 | 0.059 | | 0.950 | Oct 2016 | - | | 0.950 | Continuing | Continuing | 0 |
| Wireless Vehicle Intercom System Integration | C/CPFF | Contractor TBD : Various | 0.000 | - | | - | | 4.897 | Dec 2016 | - | | 4.897 | 0 | 4.897 | 0 |
| Battle Command | SS/CPFF | CECOM, PEO STRI, AMRDEC, CGI, LMMFC : Various | 0.914 | 2.136 | Oct 2014 | 0.059 | Oct 2015 | - | | - | | - | Continuing | Continuing | 0 |
| | | **Subtotal** | 0.989 | 2.329 | | 0.118 | | 5.847 | | - | | 5.847 | - | - | 0.000 |

**Remarks**

AMCOM - US Army Aviation & Missile Life Cycle Management Command; GSA - General Services Administration; RSA - Redstone Arsenal, Alabama; C - Competitive SS - Sole Source; CPFF - Cost Plus Fixed Fee; CECOM - US Army Communications Electronics Command; PEO STRI - Program Executive Office for Simulation, Training and Instrumentation; AMRDEC - Aviation and Missile Research, Development and Engineering Center; LMMFC - Lockheed Martin Missiles and Fire Control

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Support Contract | C/Various | Various : Various | 0.063 | 0.165 | Oct 2014 | 0.345 | Oct 2015 | - | | - | | - | 0 | 0.573 | 0 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army | | | Date: February 2016 |
|---|---|---|---|
| Appropriation/Budget Activity<br>2040 / 7 | R-1 Program Element (Number/Name)<br>PE 0603778A / *MLRS Product Improvement Program* | Project (Number/Name)<br>DX8 / *HIMARS Product Improvement Program* | |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Government Agencies (OGA) | C/TBD | AMRDEC : Various | 0.000 | - | | - | | 0.920 | Oct 2016 | - | | 0.920 | 0 | 0.920 | 0 |
| | | **Subtotal** | 0.063 | 0.165 | | 0.345 | | 0.920 | | - | | 0.920 | 0.000 | 1.493 | 0.000 |

**Remarks**

AMRDEC - Aviation & Missile Research, Development, and Engineering Center

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Support | MIPR | Ft Hood, TX, ATEC, APG, MD, WSMR, RTC, RSA : Various | 0.113 | 0.247 | Oct 2014 | 0.603 | Oct 2015 | 2.496 | Oct 2016 | - | | 2.496 | Continuing | Continuing | 0 |
| | | **Subtotal** | 0.113 | 0.247 | | 0.603 | | 2.496 | | - | | 2.496 | - | - | 0.000 |

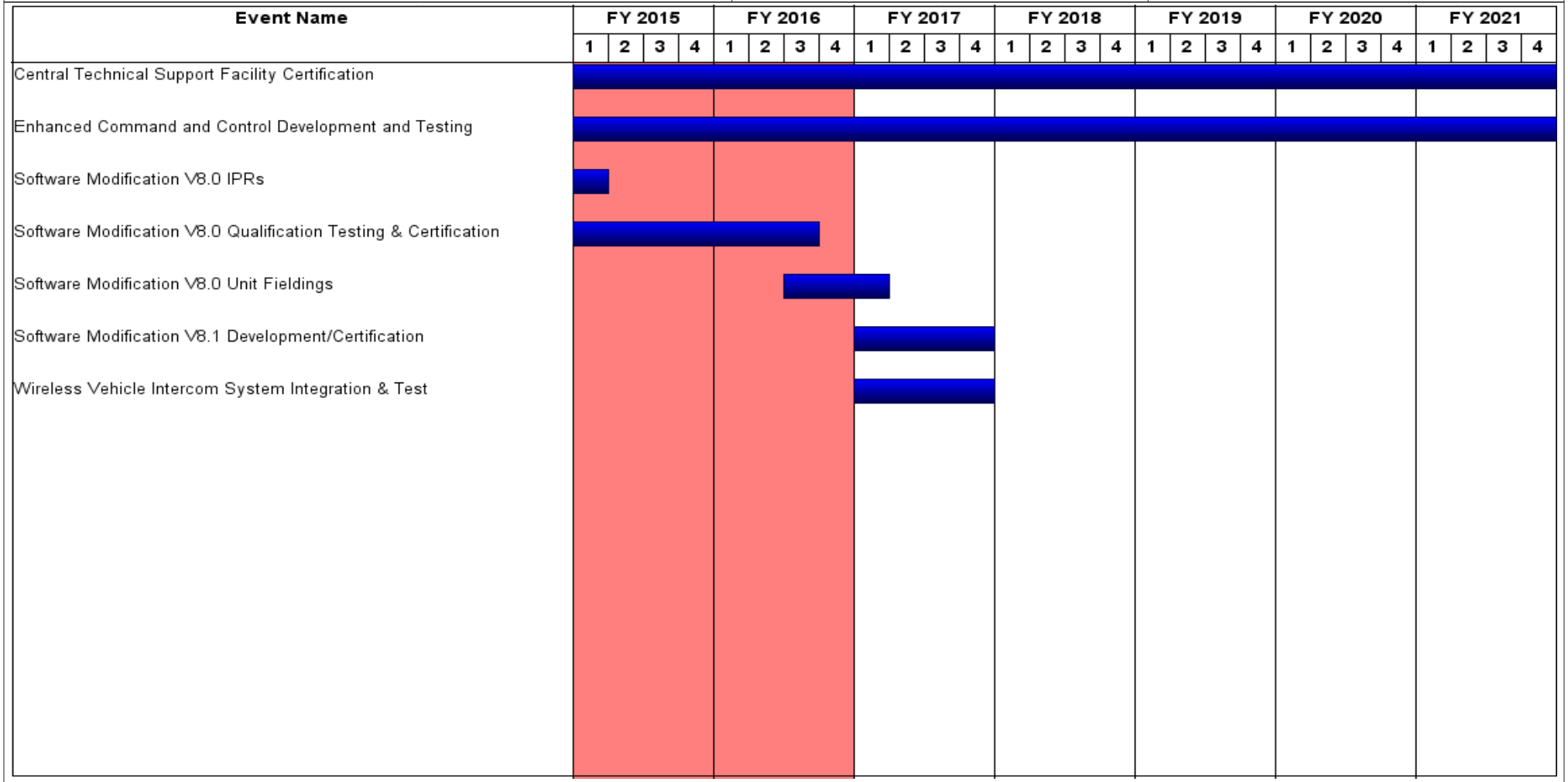
**Remarks**

ATEC - US Army Test and Evaluation Command; APG MD - Aberdeen Proving Ground, Maryland; WSMR - White Sands Missile Range; RTC RSA - Redstone Test Center, Redstone Arsenal, Alabama

| | Prior Years | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 1.215 | 2.878 | | 1.355 | | 9.663 | | - | | 9.663 | - | - | 0.000 |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>DX8 / *HIMARS Product Improvement Program* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>DX8 / *HIMARS Product Improvement Program* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| Central Technical Support Facility Certification | 1 | 2014 | 4 | 2021 |
| Enhanced Command and Control Development and Testing | 1 | 2014 | 4 | 2021 |
| Software Modification V8.0 IPRs | 4 | 2014 | 1 | 2015 |
| Software Modification V8.0 Qualification Testing & Certification | 1 | 2015 | 3 | 2016 |
| Software Modification V8.0 Unit Fieldings | 3 | 2016 | 1 | 2017 |
| Software Modification V8.1 Development/Certification | 1 | 2017 | 4 | 2017 |
| Wireless Vehicle Intercom System Integration & Test | 1 | 2017 | 4 | 2017 |

| Exhibit R-2A, RDT&E Project Justification: PB 2017 Army | | | Date: February 2016 |
|---|---|---|---|
| Appropriation/Budget Activity<br>2040 / 7 | R-1 Program Element (Number/Name)<br>PE 0603778A / *MLRS Product Improvement Program* | Project (Number/Name)<br>DZ8 / *Long Range Precision Fires* | |

| COST ($ in Millions) | Prior Years | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DZ8: *Long Range Precision Fires* | - | 0.000 | 17.042 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 17.042 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**Note**

The Army G-3/5/7 has directed that Guided Multiple Launch Rocket System (GMLRS) Increment 4 change its name to Long-Range Precision Fires (LRPF) to better reflect the solution as an Army Tactical Missile System (ATACMS) replacement versus a follow-on increment to the GMLRS program. Starting in FY2017 funding for LRPF has been realigned to new OSD-directed PE 0607134A, Proj ES1.

**A. Mission Description and Budget Item Justification**

The LRPF is being developed as a cluster and insensitive munition-compliant system that replaces and improves upon ATACMS capabilities to provide Joint Force Commanders with a 24/7, all-weather, area target, long-range fires capability without placing aircraft and crews at risk. The mission of the LRPF System will be to attack/neutralize/suppress/destroy targets using missile delivered indirect precision fires. The LRPF will counter the enemy's ability to conduct combat maneuver and air defense operations. Targets include counterfire, air defense, command and control, and other high payoff targets at all depths of the tactical battlefield. LRPF requirements include 300km range; specified lethality against the designated target set, a Missile Launch Pod Container (MLPC) that holds a minimum of two missiles; and compatibility with the existing launcher platforms (M270A1 and High Mobility Artillery Rocket System (HIMARS)). The Army has completed an Analysis of Alternatives (AoA), in accordance with Office of the Secretary of Defense (OSD) approved Material Development Decision (MDD) on 6 November 2013. The AoA was completed on 30 April 2015 and a letter of sufficiency issued by OSD in August 2015.

The Army initially funded the development of the LRPF under PE 0603778A, Proj DZ8. The LRPF program currently has a Milestone (MS) A Decision scheduled for 1QFY16. Funding was requested in FY2016 to conduct competitive sub-system risk reduction activities under DoD Section 845 Other Transaction Authority (OTA), to mature the rocket motor and warhead technology to support the award of Technology Maturation/Risk Reduction (TM/RR) system demonstration contracts in FY17. LRPF will be developed using competitive prototyping, carrying two or more contractors through the TM/RR Phase. LRPF is scheduled for a MS B in FY2020 and MS C in FY2024.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| ***Title:*** TM/RR | - | 17.042 | - |
| ***Description:*** Funding is provided for the following effort | | | |
| ***FY 2016 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>DZ8 / *Long Range Precision Fires* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| Execute system and sub-system (IM rocket motor and warhead) risk reduction prototyping design activities. Qualify GFE flight termination systems for use in TM/RR systems integration and test. | | | |
| **Accomplishments/Planned Programs Subtotals** | - | 17.042 | - |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**Remarks**

**D. Acquisition Strategy**

The LRPF is being developed as a cluster and insensitive munition-compliant system that replaces and improves upon ATACMS capabilities to provide Joint Force Commanders with a 24/7, all-weather, area target, long-range fires capability without placing aircraft and crews at risk. An AoA supporting a MS A decision is being conducted by U.S. Army Training and Doctrine Command (TRADOC) Analysis Center-White Sands Missile Range (TRAC-WSMR), with the final report to be completed in March 2015. The Milestone Decision Authority will hold a MS A decision review in 1QFY16. The Acquisition Strategy is for competitive prototyping for TM/RR at both the sub-system and system demonstration levels. After a MS A decision directing a new start LRPF system, the program office will initiate TM/RR activities with awards in 3QFY16 for critical sub-system prototyping under the DoD Ordnance Technology Consortium (DOTC) Section 845 (NDAA 1994) Other Transaction Authority. The program will also conduct a full and open competition in FY2016 of a 24-month TM/RR competitive prototyping and flight demonstration phase to be awarded to two contractors in 2QFY2017. Flight demonstrations and PDRs in FY18 will lead to a limited competition for the EMD contract and competitive down select at MS B.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>DZ8 / *Long Range Precision Fires* |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Government Program Management | SS/BA | PFRMS Project Office, : RSA | 0.000 | - | | 2.446 | Oct 2015 | - | | - | | - | 0 | 2.446 | 0 |
| | | **Subtotal** | 0.000 | - | | 2.446 | | - | | - | | - | 0.000 | 2.446 | 0.000 |

**Remarks**

PFRMS-Precision Fires Rocket and Missile Systems; RSA-Redstone Arsenal, Alabama; TBD-To Be Determined

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LRPF Risk Reduction – DOTC OTA (Sec 845) | C/TBD | TBD : TBD | 0.000 | - | | 12.033 | | - | | - | | - | Continuing | Continuing | Continuing |
| Other Government Agencies | MIPR | AMCOM/AMRDEC, : RSA | 0.000 | - | | 1.038 | | - | | - | | - | 0 | 1.038 | 0 |
| | | **Subtotal** | 0.000 | - | | 13.071 | | - | | - | | - | - | - | - |

**Remarks**

LRPF-Long-Range Precision Fires; LMMFCS-Lockheed Martin Missile and Fire Control System; TX-Texas; C-Competitive; TBD: To Be Determined; AMCOM-Army Materiel Command; AMRDEC-U.S. Army Research, Development and Engineering Command; RSA-Redstone Arsenal, AL

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Support Contract | TBD | TBD : TBD | 0.000 | - | | 1.126 | | - | | - | | - | 0 | 1.126 | 0 |
| | | **Subtotal** | 0.000 | - | | 1.126 | | - | | - | | - | 0.000 | 1.126 | 0.000 |

**Remarks**

S3-Systems Studies Simulation, Inc.; TMI-Tec Master, Inc.; TBD-To Be Determined

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army | | | Date: February 2016 |
|---|---|---|---|
| Appropriation/Budget Activity<br>2040 / 7 | R-1 Program Element (Number/Name)<br>PE 0603778A / *MLRS Product Improvement Program* | Project (Number/Name)<br>DZ8 / *Long Range Precision Fires* | |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2015 Cost | FY 2015 Award Date | FY 2016 Cost | FY 2016 Award Date | FY 2017 Base Cost | FY 2017 Base Award Date | FY 2017 OCO Cost | FY 2017 OCO Award Date | FY 2017 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Support | MIPR | WSMR, NM; : RTC, AL | 0.000 | - | | 0.399 | | - | | - | | - | 0 | 0.399 | 0 |
| | | **Subtotal** | 0.000 | - | | 0.399 | | - | | - | | - | 0.000 | 0.399 | 0.000 |

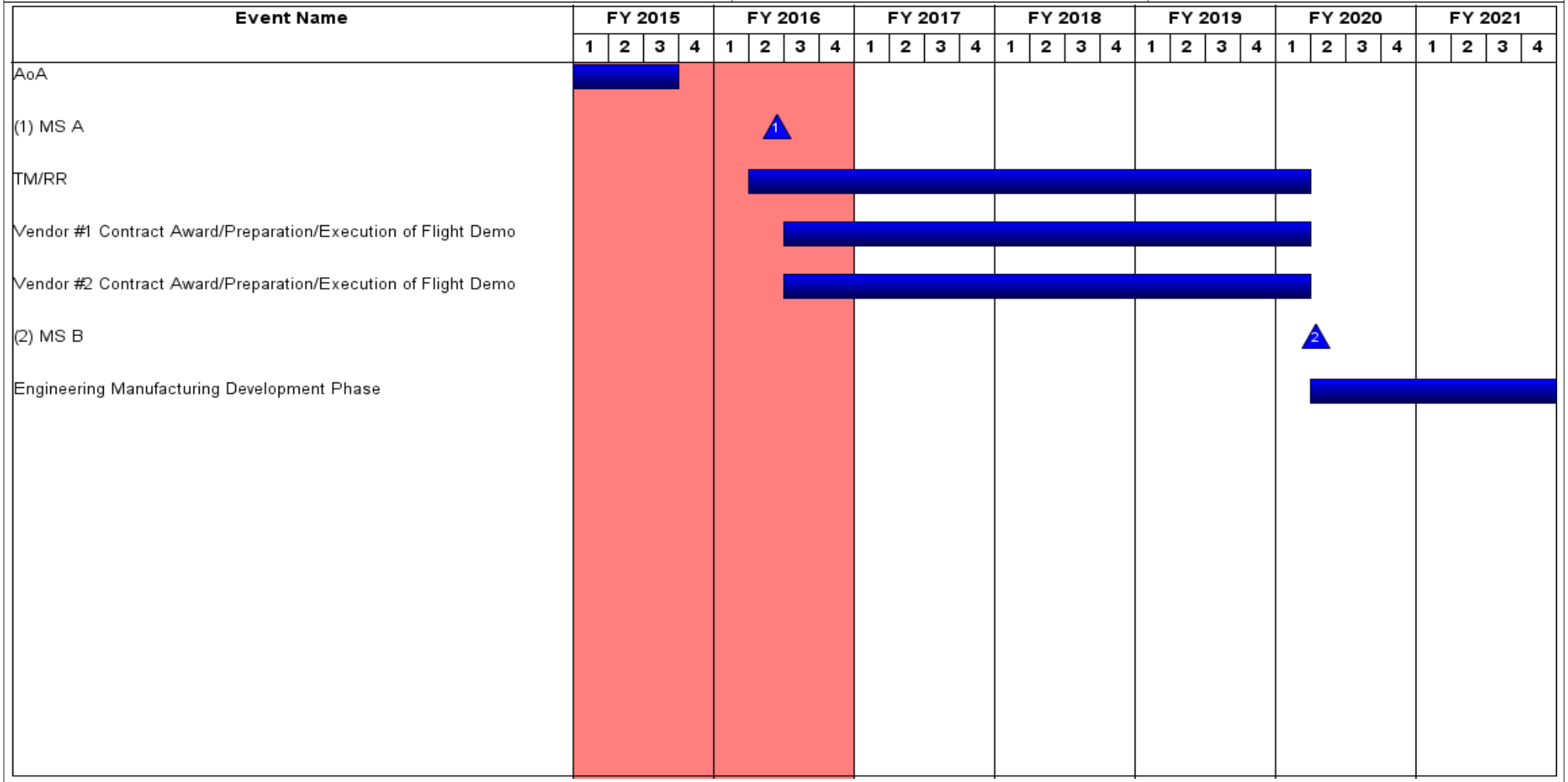
**Remarks**

WSMR, NM-White Sands Missile Range, New Mexico; RTC, AL-Redstone Test Center, Alabama

| | Prior Years | FY 2015 | | FY 2016 | | FY 2017 Base | | FY 2017 OCO | | FY 2017 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 0.000 | - | | 17.042 | | - | | - | | - | - | - | - |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>DZ8 / *Long Range Precision Fires* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army | | Date: February 2016 |
|---|---|---|
| **Appropriation/Budget Activity**<br>2040 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0603778A / *MLRS Product Improvement Program* | **Project (Number/Name)**<br>DZ8 / *Long Range Precision Fires* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| AoA | 1 | 2014 | 3 | 2015 |
| MS A | 2 | 2016 | 2 | 2016 |
| TM/RR | 2 | 2016 | 1 | 2020 |
| Vendor #1 Contract Award/Preparation/Execution of Flight Demo | 3 | 2016 | 1 | 2020 |
| Vendor #2 Contract Award/Preparation/Execution of Flight Demo | 3 | 2016 | 1 | 2020 |
| MS B | 2 | 2020 | 2 | 2020 |
| Engineering Manufacturing Development Phase | 2 | 2020 | 3 | 2024 |

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