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**Department of Defense
Fiscal Year (FY) 2024 Budget Estimates**

March 2023



Army

Justification Book Volume 4b of 4

Research, Development, Test & Evaluation, Army

RDT&E – Volume III, Budget Activity 7

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Army • Budget Estimates FY 2024 • RDT&E Program

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RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
APPROPRIATION LANGUAGE

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, \$15,772,215,000.00 to remain available for obligation until September 30, 2025.

The FY 2024 Overseas Operations accounted for in the base budget are as follows:

In-theater and in-CONUS expenses that remain after combat operations cease and have been previously funded in Overseas Operations \$3,166,000.00.

COST STATEMENT

The following Justification Books were prepared at a cost of \$365,839.52: Aircraft (ACFT), Missiles (MSLS), Weapons & Tracked Combat Vehicles (WTCV), Ammunition (AMMO), Other Procurement Army (OPA) 1 – Tactical & Support Vehicles, Other Procurement Army (OPA) 2 – Communications & Electronics, Other Procurement Army (OPA) 3 & 4 - Other Support Equipment & Spares, Research, Development, Test and Evaluation (RDTE) for: Budget Activity 1, Budget Activity 2, Budget Activity 3, Budget Activity 4, Budget Activity 5A, Budget Activity 5B, Budget Activity 5C, Budget Activity 5D, Budget Activity 6, Budget Activity 7, and Budget Activity 8.

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FY 2024 RDT&E, ARMY PROGRAM ELEMENT DESCRIPTIVE SUMMARIES
Introduction and Explanation of Contents

1. **General.** The purpose of this document is to provide summary information concerning the Research, Development, Test and Evaluation, Army program. The descriptive summaries are comprised of R-2 (Army RDT&E Budget Item Justification – program element level), R-2A (Army RDT&E Budget Item Justification – project level), R-3 (Army RDT&E Cost Analysis), R-4 (Schedule Profile Detail) and R-5 (Termination Liability Funding for MDAPs) Exhibits, which provide narrative information on all RDT&E program elements and projects through FY 2024.

2. **Relationship of the FY 2024 Budget Submitted to Congress to the FY 2023 Budget Submitted to Congress.** This paragraph provides a list of program elements/projects that are major new starts, restructures, developmental transitions, and terminated programs. Explanations for these changes can be found in the narrative sections of the Program Element R-2A Exhibits.

New Start Programs:

| <u>Budget Activity</u> | <u>OSDPE / Project</u> | <u>Project Title</u> |
|------------------------|------------------------|---|
| 02 | 0602146A / AM6 | Modular RF Communications Technology |
| 02 | 0602148A / CI4 | Adaptive Avionics Technologies |
| 02 | 0602141A / CIC | Fire Control Lethality Technology |
| 02 | 0602182A / DA8 | Quantum PNT & Radio Frequency Sensing |
| 02 | 0602182A / DB4 | Enabling Long Standoff 3D (ELS3D) Tech |
| 02 | 0602002A / DC6 | Sci & Analysis for Autonomous Sys & Counter-Auton |
| 02 | 0602183A / DE2 | Airborne Threat Defeat |
| 02 | 0602150A / DE3 | Adv Beam Control Component Development for C-CM |
| 02 | 0602182A / DE6 | Understanding Environment as a Threat Tech |
| 03 | 0603044A / CW1 | Technical-SAVVY Soldier Advanced Research |
| 03 | 0603116A / DB2 | Future Armaments Scalable Technologies |
| 03 | 0603042A / DB5 | Enabling Long Standoff 3D (ELS3D) Adv Tech |
| 03 | 0603463A / DB6 | Pathfinder 3D Advanced Technology |
| 04 | 0604103A / DG4 | NAVWAR SA |
| 04 | 0603779A / DH6 | Installation Resilience |
| 05 | 0604802A / DC9 | 30mm MMPA M-SHORAD INC 3 |

| | | |
|----|----------------|--|
| 05 | 0604818A / DD1 | Unified Network Technology Trans & Integ (UNTTI) |
| 05 | 0605206A / DG3 | CI and HUMINT Equipment Program-Army (CIHEP-A) |
| 05 | 0605013A / DH1 | Operational Medicine Information System |
| 05 | 0605216A / EFA | Joint Target Integrated Cmd & Coordination Suite |
| 05 | 0605036A / EQ5 | Combating Weapons of Mass Destruction (CWMD) |
| 05 | 0605049A / XT4 | Advanced Threat Detection System (ATDS) |
| 06 | 0605601A / WD1 | West Desert Test Center |
| 07 | 0203735A / DD4 | AMPV Improvement Program |
| 07 | 0607315A / DD5 | Army Power Systems Modernization |

Program Element/Project Restructures:

| <u>Budget Activity</u> | <u>Old OSDPE / Project: Title</u> | <u>New OSDPE / Project</u> |
|------------------------|---|----------------------------|
| 02 | 0602145A / CU5: Next Generation Combat Vehicle Technolog | 0602141A / CIA |
| 02 | 0602181A / CM7: All Domain Convergence Applied Research | 0602141A / CIB |
| 02 | 0602143A / AZ9: Soldier Lethality Technology | 0602143A / BB4 |
| 02 | 0602143A / BBG: Soldier Lethality Technology | 0602143A / BC2 |
| 02 | 0602145A / BG8: Next Generation Combat Vehicle Technology | 0602144A / DG1 |
| 02 | 0602180A / CL7: Artificial Intelligence and Machine Learning Technologies | 0602180A / DE8 |
| 03 | 0603040A / CL6: Artificial Intelligence and Machine Learning Technologies | 0603040A / DE9 |
| 03 | 0603463A / AR6: Network C3I Advanced Technology | 0603042A / DE7 |
| 03 | 0603041A / CM8: All Domain Convergence Advanced Technology | 0603116A / CID |
| 03 | 0603462A / BH6: Next Generation Combat Vehicle Advanced Technology | 0603118A / BD9 |
| 03 | 0603462A / BG9: Next Generation Combat Vehicle Advanced Technology | 0603119A / DG2 |
| 03 | 0603464A / CZ8: Long Range Precision Fires Advanced Technology | 0603464A / AF2 |
| 04 | 0604036A / BY9: Multi-Domain Sensing System (MDSS) Adv Dev | 0604036A / DD6 |
| 04 | 0604036A / BY9: Multi-Domain Sensing System (MDSS) Adv Dev | 0604036A / DD6 |

| | | |
|----|---|----------------|
| 05 | 0604818A / EJ5: Family of Heavy Vehicles | 0604622A / DG7 |
| 05 | 0605224A / CK4: Long-Range Hypersonic Weapon | 0604182A / HX2 |
| 05 | 0605224A / CK4: All Up Round and Canister (AUR+C) | 0604182A / HX2 |
| 05 | 0605457A / S40: Common Hypersonic Glide Body (CHGB) | 0604182A / HX2 |
| 05 | 0605601A / F30: Ground Support Equipment (GSE) | 0604182A / HX2 |
| 05 | 0203744A / EB6: HX6: Test and Evaluation | 0604182A / HX2 |
| 05 | 0605224A / CK4: Multi-Domain Intelligence | 0604805A / 593 |
| 05 | 0605224A / CK4: Multi-Domain Intelligence | 0605224A / DD8 |
| 05 | 0605457A / S40: Multi-Domain Intelligence | 0605224A / DD9 |
| 05 | 0605601A / F30: Army Integrated Air and Missile Defense (AIAMD) | 0605457A / SS1 |
| 06 | 0605601A / F30: Army Integrated Air and Missile Defense (AIAMD) | 0605702A / 128 |
| 07 | 0203744A / EB6: Army Test Ranges and Facilities | 0305219A / MQ2 |

Program Terminations (including transfers to Procurement and Sustainment):

| <u><i>Budget Activity</i></u> | <u><i>OSDPE / Project</i></u> | <u><i>Project Title</i></u> |
|-------------------------------|-------------------------------|---|
| 03 | 0603465A / AI8 | Future Vertical Lift Advanced Technology / Alternative Concept Engine Advanced Technology |
| 03 | 0603463A / AV4 | Network C3I Advanced Technology / Foundational S&T for Network C3I Advanced Tech |
| 04 | 0305251A / DD3 | Cyberspace Operations Forces and Force Support / Joint Cyber Warfighting Architecture Cyber Train |
| 04 | 0604115A / AX8 | Technology Maturation Initiatives / Adv Leth and Accuracy Sys for Med Calber (ALAS-MC) |
| 04 | 0604115A / AX9 | Technology Maturation Initiatives / Adv Mobility Experimental Prototype Adv Tech |
| 05 | 0604802A / CE3 | Weapons and Munitions - Eng Dev / Precision Munition (Sniper) |
| 05 | 0604802A / EU4 | Weapons and Munitions - Eng Dev / 40mm HV Improved High Explosive Dual Purpose |
| 05 | 0604804A / FG4 | Logistics and Engineer Equipment - Eng Dev / Ultra-Lightweight Camouflage Net System (ULCANS) |
| 05 | 0604822A / DV6 | General Fund Enterprise Business System (GFEBs) / General Fund Enterprise Business System |
| 05 | 0604854A / HB6 | Artillery Systems - EMD / Mobile 155MM Howitzer |
| 05 | 0605013A / 184 | Information Technology Development / Installation Support Modules |
| 07 | 0305204A / 11A | Tactical Unmanned Aerial Vehicles / Advanced Payload Develop & Spt |

| | | |
|----|----------------|--|
| 07 | 0305206A / EH2 | Airborne Reconnaissance Systems / EMARSS ADV DEV |
| 07 | 0305206A / EH3 | Airborne Reconnaissance Systems / EMARSS Payloads ADV DEV |
| 08 | 0608041A / DD2 | Defensive CYBER - Software Prototype Development / Joint Cyber Warfighting Architecture Software |

3. **Classification:** This document contains no classified data. Appropriately cleared individuals can obtain further information on Classified/Special Access Programs by contacting the Department of the Army.

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Department of Defense
 FY 2024 President's Budget
 Exhibit R-1 FY 2024 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

Mar 2023

| <u>Appropriation</u> | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment* | FY 2023 Total Enactment | FY 2024 Request |
|--|--------------------|--|--|----------------------------|--------------------|
| Research, Development, Test and Evaluation, Army | 14,660,654 | 17,142,121 | 9,100 | 17,151,221 | 15,775,381 |
| Total Research, Development, Test, & Evaluation | 14,660,654 | 17,142,121 | 9,100 | 17,151,221 | 15,775,381 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Department of Defense
 FY 2024 President's Budget
 Exhibit R-1 FY 2024 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

Mar 2023

| | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment* | FY 2023 Total Enactment | FY 2024 Request |
|--|--------------------|--|--|----------------------------|--------------------|
| <u>Summary Recap of Budget Activities</u> | | | | | |
| Basic Research | 590,078 | 635,395 | | 635,395 | 497,455 |
| Applied Research | 1,521,472 | 1,823,330 | | 1,823,330 | 948,358 |
| Advanced Technology Development | 2,145,309 | 2,532,690 | | 2,532,690 | 1,455,986 |
| Advanced Component Development & Prototypes | 3,799,417 | 4,631,111 | 6,000 | 4,637,111 | 4,420,315 |
| System Development & Demonstration | 3,178,005 | 4,317,752 | 600 | 4,318,352 | 5,639,364 |
| Management Support | 1,901,655 | 1,820,502 | | 1,820,502 | 1,624,585 |
| Operational Systems Development | 1,416,677 | 1,286,510 | 2,500 | 1,289,010 | 1,105,748 |
| Software And Digital Technology Pilot Programs | 108,041 | 94,831 | | 94,831 | 83,570 |
| Total Research, Development, Test, & Evaluation | 14,660,654 | 17,142,121 | 9,100 | 17,151,221 | 15,775,381 |
| <u>Summary Recap of FYDP Programs</u> | | | | | |
| General Purpose Forces | 559,789 | 372,120 | | 372,120 | 404,375 |
| Intelligence and Communications | 262,480 | 248,995 | | 248,995 | 212,694 |
| Research and Development | 13,733,825 | 16,382,072 | 9,100 | 16,391,172 | 15,055,009 |
| Central Supply and Maintenance | 101,466 | 132,270 | | 132,270 | 75,317 |
| Administration and Associated Activities | 101 | | | | |
| Classified Programs | 2,993 | 6,664 | | 6,664 | 27,986 |
| Total Research, Development, Test, & Evaluation | 14,660,654 | 17,142,121 | 9,100 | 17,151,221 | 15,775,381 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Department of the Army
 FY 2024 President's Budget
 Exhibit R-1 FY 2024 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

Mar 2023

| | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment* | FY 2023 Total Enactment | FY 2024 Request |
|--|--------------------|--|--|----------------------------|--------------------|
| <u>Summary Recap of Budget Activities</u> | | | | | |
| Basic Research | 590,078 | 635,395 | | 635,395 | 497,455 |
| Applied Research | 1,521,472 | 1,823,330 | | 1,823,330 | 948,358 |
| Advanced Technology Development | 2,145,309 | 2,532,690 | | 2,532,690 | 1,455,986 |
| Advanced Component Development & Prototypes | 3,799,417 | 4,631,111 | 6,000 | 4,637,111 | 4,420,315 |
| System Development & Demonstration | 3,178,005 | 4,317,752 | 600 | 4,318,352 | 5,639,364 |
| Management Support | 1,901,655 | 1,820,502 | | 1,820,502 | 1,624,585 |
| Operational Systems Development | 1,416,677 | 1,286,510 | 2,500 | 1,289,010 | 1,105,748 |
| Software And Digital Technology Pilot Programs | 108,041 | 94,831 | | 94,831 | 83,570 |
| Total Research, Development, Test, & Evaluation | 14,660,654 | 17,142,121 | 9,100 | 17,151,221 | 15,775,381 |
| <u>Summary Recap of FYDP Programs</u> | | | | | |
| General Purpose Forces | 559,789 | 372,120 | | 372,120 | 404,375 |
| Intelligence and Communications | 262,480 | 248,995 | | 248,995 | 212,694 |
| Research and Development | 13,733,825 | 16,382,072 | 9,100 | 16,391,172 | 15,055,009 |
| Central Supply and Maintenance | 101,466 | 132,270 | | 132,270 | 75,317 |
| Administration and Associated Activities | 101 | | | | |
| Classified Programs | 2,993 | 6,664 | | 6,664 | 27,986 |
| Total Research, Development, Test, & Evaluation | 14,660,654 | 17,142,121 | 9,100 | 17,151,221 | 15,775,381 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Department of the Army
 FY 2024 President's Budget
 Exhibit R-1 FY 2024 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

Mar 2023

Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment* | FY 2023 Total Enactment |
|---------|------------------------|---|-----|------|-----------------|--------------------------------------|----------------------------------|-------------------------|
| 1 | 0601102A | Defense Research Sciences | 01 | U | 358,521 | 391,642 | | 391,642 |
| 2 | 0601103A | University Research Initiatives | 01 | U | 88,797 | 107,160 | | 107,160 |
| 3 | 0601104A | University and Industry Research Centers | 01 | U | 122,521 | 121,160 | | 121,160 |
| 4 | 0601121A | Cyber Collaborative Research Alliance | 01 | U | 5,067 | 5,355 | | 5,355 |
| 5 | 0601601A | Artificial Intelligence and Machine Learning Basic Research | 01 | U | 15,172 | 10,078 | | 10,078 |
| | Basic Research | | | | 590,078 | 635,395 | | 635,395 |
| 6 | 0602002A | Army Agile Innovation and Development-Applied Research | 02 | U | | 1,000 | | 1,000 |
| 7 | 0602115A | Biomedical Technology | 02 | U | 11,489 | | | |
| 8 | 0602134A | Counter Improvised-Threat Advanced Studies | 02 | U | 1,904 | 6,192 | | 6,192 |
| 9 | 0602141A | Lethality Technology | 02 | U | 89,285 | 194,717 | | 194,717 |
| 10 | 0602142A | Army Applied Research | 02 | U | 28,654 | 27,833 | | 27,833 |
| 11 | 0602143A | Soldier Lethality Technology | 02 | U | 201,221 | 253,539 | | 253,539 |
| 12 | 0602144A | Ground Technology | 02 | U | 214,489 | 264,523 | | 264,523 |
| 13 | 0602145A | Next Generation Combat Vehicle Technology | 02 | U | 239,284 | 277,445 | | 277,445 |
| 14 | 0602146A | Network C3I Technology | 02 | U | 161,759 | 212,115 | | 212,115 |
| 15 | 0602147A | Long Range Precision Fires Technology | 02 | U | 107,454 | 128,529 | | 128,529 |
| 16 | 0602148A | Future Verticle Lift Technology | 02 | U | 130,108 | 104,348 | | 104,348 |
| 17 | 0602150A | Air and Missile Defense Technology | 02 | U | 92,926 | 88,768 | | 88,768 |
| 18 | 0602180A | Artificial Intelligence and Machine Learning Technologies | 02 | U | 14,486 | 16,068 | | 16,068 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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 FY 2024 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

Mar 2023

Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2024 Request |
|---------|------------------------|---|-----|------|-----------------|
| 1 | 0601102A | Defense Research Sciences | 01 | U | 296,670 |
| 2 | 0601103A | University Research Initiatives | 01 | U | 75,672 |
| 3 | 0601104A | University and Industry Research Centers | 01 | U | 108,946 |
| 4 | 0601121A | Cyber Collaborative Research Alliance | 01 | U | 5,459 |
| 5 | 0601601A | Artificial Intelligence and Machine Learning Basic Research | 01 | U | 10,708 |
| | Basic Research | | | | 497,455 |
| 6 | 0602002A | Army Agile Innovation and Development-Applied Research | 02 | U | 5,613 |
| 7 | 0602115A | Biomedical Technology | 02 | U | |
| 8 | 0602134A | Counter Improvised-Threat Advanced Studies | 02 | U | 6,242 |
| 9 | 0602141A | Lethality Technology | 02 | U | 85,578 |
| 10 | 0602142A | Army Applied Research | 02 | U | 34,572 |
| 11 | 0602143A | Soldier Lethality Technology | 02 | U | 104,470 |
| 12 | 0602144A | Ground Technology | 02 | U | 60,005 |
| 13 | 0602145A | Next Generation Combat Vehicle Technology | 02 | U | 166,500 |
| 14 | 0602146A | Network C3I Technology | 02 | U | 81,618 |
| 15 | 0602147A | Long Range Precision Fires Technology | 02 | U | 34,683 |
| 16 | 0602148A | Future Verticle Lift Technology | 02 | U | 73,844 |
| 17 | 0602150A | Air and Missile Defense Technology | 02 | U | 33,301 |
| 18 | 0602180A | Artificial Intelligence and Machine Learning Technologies | 02 | U | 24,142 |

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 Total Obligational Authority
 (Dollars in Thousands)

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Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment* | FY 2023 Total Enactment |
|---------|-------------------------|--|-----|------|------------------|--------------------------------------|----------------------------------|-------------------------|
| 19 | 0602181A | All Domain Convergence Applied Research | 02 | U | 25,019 | 27,360 | | 27,360 |
| 20 | 0602182A | C3I Applied Research | 02 | U | 11,954 | 27,868 | | 27,868 |
| 21 | 0602183A | Air Platform Applied Research | 02 | U | 6,356 | 41,588 | | 41,588 |
| 22 | 0602184A | Soldier Applied Research | 02 | U | 10,660 | 15,716 | | 15,716 |
| 23 | 0602213A | C3I Applied Cyber | 02 | U | 12,119 | 13,605 | | 13,605 |
| 24 | 0602386A | Biotechnology for Materials - Applied Research | 02 | U | 19,889 | 21,811 | | 21,811 |
| 25 | 0602785A | Manpower/Personnel/Training Technology | 02 | U | 18,414 | 19,649 | | 19,649 |
| 26 | 0602787A | Medical Technology | 02 | U | 124,002 | 80,656 | | 80,656 |
| | Applied Research | | | | 1,521,472 | 1,823,330 | | 1,823,330 |
| 27 | 0603002A | Medical Advanced Technology | 03 | U | 147,287 | 31,588 | | 31,588 |
| 28 | 0603007A | Manpower, Personnel and Training Advanced Technology | 03 | U | 13,865 | 15,598 | | 15,598 |
| 29 | 0603025A | Army Agile Innovation and Demonstration Artificial Intelligence and Machine Learning Advanced Technologies | 03 | U | 21,420 | 20,900 | | 20,900 |
| 30 | 0603040A | | 03 | U | 876 | 6,395 | | 6,395 |
| 31 | 0603041A | All Domain Convergence Advanced Technology | 03 | U | 20,095 | 45,377 | | 45,377 |
| 32 | 0603042A | C3I Advanced Technology | 03 | U | 3,036 | 12,716 | | 12,716 |
| 33 | 0603043A | Air Platform Advanced Technology | 03 | U | 727 | 17,946 | | 17,946 |
| 34 | 0603044A | Soldier Advanced Technology | 03 | U | 858 | 479 | | 479 |
| 35 | 0603115A | Medical Development | 03 | U | 25,540 | | | |
| 36 | 0603116A | Lethality Advanced Technology | 03 | U | 7,772 | 9,796 | | 9,796 |
| 37 | 0603117A | Army Advanced Technology Development | 03 | U | 76,815 | 134,874 | | 134,874 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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 FY 2024 President's Budget
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 Total Obligational Authority
 (Dollars in Thousands)

Mar 2023

Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2024 Request |
|---------|-------------------------|--|-----|------|-----------------|
| 19 | 0602181A | All Domain Convergence Applied Research | 02 | U | 14,297 |
| 20 | 0602182A | C3I Applied Research | 02 | U | 30,659 |
| 21 | 0602183A | Air Platform Applied Research | 02 | U | 48,163 |
| 22 | 0602184A | Soldier Applied Research | 02 | U | 18,986 |
| 23 | 0602213A | C3I Applied Cyber | 02 | U | 22,714 |
| 24 | 0602386A | Biotechnology for Materials - Applied Research | 02 | U | 16,736 |
| 25 | 0602785A | Manpower/Personnel/Training Technology | 02 | U | 19,969 |
| 26 | 0602787A | Medical Technology | 02 | U | 66,266 |
| | Applied Research | | | | 948,358 |
| 27 | 0603002A | Medical Advanced Technology | 03 | U | 4,147 |
| 28 | 0603007A | Manpower, Personnel and Training Advanced Technology | 03 | U | 16,316 |
| 29 | 0603025A | Army Agile Innovation and Demonstration Artificial Intelligence and Machine Learning Advanced Technologies | 03 | U | 23,156 |
| 30 | 0603040A | | 03 | U | 13,187 |
| 31 | 0603041A | All Domain Convergence Advanced Technology | 03 | U | 33,332 |
| 32 | 0603042A | C3I Advanced Technology | 03 | U | 19,225 |
| 33 | 0603043A | Air Platform Advanced Technology | 03 | U | 14,165 |
| 34 | 0603044A | Soldier Advanced Technology | 03 | U | 1,214 |
| 35 | 0603115A | Medical Development | 03 | U | |
| 36 | 0603116A | Lethality Advanced Technology | 03 | U | 20,582 |
| 37 | 0603117A | Army Advanced Technology Development | 03 | U | 136,280 |

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Department of the Army
 FY 2024 President's Budget
 Exhibit R-1 FY 2024 President's Budget
 Total Obligational Authority
 (Dollars in Thousands)

Mar 2023

Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment* | FY 2023 Total Enactment |
|---------|------------------------|--|-----|------|------------------|--------------------------------------|----------------------------------|-------------------------|
| 38 | 0603118A | Soldier Lethality Advanced Technology | 03 | U | 148,458 | 154,639 | | 154,639 |
| 39 | 0603119A | Ground Advanced Technology | 03 | U | 281,637 | 415,846 | | 415,846 |
| 40 | 0603134A | Counter Improvised-Threat Simulation | 03 | U | 23,920 | 21,486 | | 21,486 |
| 41 | 0603386A | Biotechnology for Materials - Advanced Research | 03 | U | 51,774 | 56,853 | | 56,853 |
| 42 | 0603457A | C3I Cyber Advanced Development | 03 | U | 61,426 | 41,354 | | 41,354 |
| 43 | 0603461A | High Performance Computing Modernization Program | 03 | U | 222,220 | 301,964 | | 301,964 |
| 44 | 0603462A | Next Generation Combat Vehicle Advanced Technology | 03 | U | 294,491 | 471,434 | | 471,434 |
| 45 | 0603463A | Network C3I Advanced Technology | 03 | U | 205,576 | 177,917 | | 177,917 |
| 46 | 0603464A | Long Range Precision Fires Advanced Technology | 03 | U | 138,482 | 202,830 | | 202,830 |
| 47 | 0603465A | Future Vertical Lift Advanced Technology | 03 | U | 255,323 | 272,551 | | 272,551 |
| 48 | 0603466A | Air and Missile Defense Advanced Technology | 03 | U | 125,027 | 99,147 | | 99,147 |
| 49 | 0603920A | Humanitarian Demining | 03 | U | 18,684 | 21,000 | | 21,000 |
| | | Advanced Technology Development | | | 2,145,309 | 2,532,690 | | 2,532,690 |
| 51 | 0603305A | Army Missile Defense Systems Integration | 04 | U | 56,579 | 118,001 | | 118,001 |
| 52 | 0603308A | Army Space Systems Integration | 04 | U | 25,401 | 30,945 | | 30,945 |
| 53 | 0603327A | Air and Missile Defense Systems Engineering | 04 | U | 15,000 | 15,000 | | 15,000 |
| 54 | 0603619A | Landmine Warfare and Barrier - Adv Dev | 04 | U | 44,933 | 55,953 | 6,000 | 61,953 |
| 55 | 0603639A | Tank and Medium Caliber Ammunition | 04 | U | 61,641 | 51,488 | | 51,488 |
| 56 | 0603645A | Armored System Modernization - Adv Dev | 04 | U | 154,010 | 135,122 | | 135,122 |
| 57 | 0603747A | Soldier Support and Survivability | 04 | U | 2,791 | 4,060 | | 4,060 |
| 58 | 0603766A | Tactical Electronic Surveillance System - Adv Dev | 04 | U | 113,365 | 72,314 | | 72,314 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2024 Request |
|---------|------------------------|--|-----|------|------------------|
| 38 | 0603118A | Soldier Lethality Advanced Technology | 03 | U | 102,778 |
| 39 | 0603119A | Ground Advanced Technology | 03 | U | 40,597 |
| 40 | 0603134A | Counter Improvised-Threat Simulation | 03 | U | 21,672 |
| 41 | 0603386A | Biotechnology for Materials - Advanced Research | 03 | U | 59,871 |
| 42 | 0603457A | C3I Cyber Advanced Development | 03 | U | 28,847 |
| 43 | 0603461A | High Performance Computing Modernization Program | 03 | U | 255,772 |
| 44 | 0603462A | Next Generation Combat Vehicle Advanced Technology | 03 | U | 217,394 |
| 45 | 0603463A | Network C3I Advanced Technology | 03 | U | 105,549 |
| 46 | 0603464A | Long Range Precision Fires Advanced Technology | 03 | U | 153,024 |
| 47 | 0603465A | Future Vertical Lift Advanced Technology | 03 | U | 158,795 |
| 48 | 0603466A | Air and Missile Defense Advanced Technology | 03 | U | 21,015 |
| 49 | 0603920A | Humanitarian Demining | 03 | U | 9,068 |
| | | Advanced Technology Development | | | 1,455,986 |
| 51 | 0603305A | Army Missile Defense Systems Integration | 04 | U | 12,904 |
| 52 | 0603308A | Army Space Systems Integration | 04 | U | 19,120 |
| 53 | 0603327A | Air and Missile Defense Systems Engineering | 04 | U | |
| 54 | 0603619A | Landmine Warfare and Barrier - Adv Dev | 04 | U | 47,537 |
| 55 | 0603639A | Tank and Medium Caliber Ammunition | 04 | U | 91,323 |
| 56 | 0603645A | Armored System Modernization - Adv Dev | 04 | U | 43,026 |
| 57 | 0603747A | Soldier Support and Survivability | 04 | U | 3,550 |
| 58 | 0603766A | Tactical Electronic Surveillance System - Adv Dev | 04 | U | 65,567 |

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Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment | FY 2023 Total Enactment |
|---------|------------------------|--|-----|------|-----------------|--------------------------------------|---------------------------------|-------------------------|
| 59 | 0603774A | Night Vision Systems Advanced Development | 04 | U | 62,534 | 97,478 | | 97,478 |
| 60 | 0603779A | Environmental Quality Technology - Dem/Val | 04 | U | 22,491 | 76,749 | | 76,749 |
| 61 | 0603790A | NATO Research and Development | 04 | U | 3,639 | 3,805 | | 3,805 |
| 62 | 0603801A | Aviation - Adv Dev | 04 | U | 1,138,457 | 1,157,472 | | 1,157,472 |
| 63 | 0603804A | Logistics and Engineer Equipment - Adv Dev | 04 | U | 10,797 | 24,638 | | 24,638 |
| 64 | 0603807A | Medical Systems - Adv Dev | 04 | U | 27,768 | 5,598 | | 5,598 |
| 65 | 0603827A | Soldier Systems - Advanced Development | 04 | U | 25,288 | 23,444 | | 23,444 |
| 66 | 0604017A | Robotics Development | 04 | U | 78,309 | 26,555 | | 26,555 |
| 67 | 0604019A | Expanded Mission Area Missile (EMAM) | 04 | U | 26,855 | 258,320 | | 258,320 |
| 68 | 0604020A | Cross Functional Team (CFT) Advanced Development & Prototyping | 04 | U | | 77,000 | | 77,000 |
| 69 | 0604035A | Low Earth Orbit (LEO) Satellite Capability | 04 | U | 18,922 | 35,509 | | 35,509 |
| 70 | 0604036A | Multi-Domain Sensing System (MDSS) Adv Dev | 04 | U | 50,548 | 47,915 | | 47,915 |
| 71 | 0604037A | Tactical Intel Targeting Access Node (TITAN) Adv Dev | 04 | U | 28,347 | 863 | | 863 |
| 72 | 0604100A | Analysis Of Alternatives | 04 | U | 9,723 | 10,659 | | 10,659 |
| 73 | 0604101A | Small Unmanned Aerial Vehicle (SUAV) (6.4) | 04 | U | 892 | 1,425 | | 1,425 |
| 74 | 0604103A | Electronic Warfare Planning and Management Tool (EWPMT) | 04 | U | | | | |
| 75 | 0604113A | Future Tactical Unmanned Aircraft System (FTUAS) | 04 | U | 76,349 | 134,719 | | 134,719 |
| 76 | 0604114A | Lower Tier Air Missile Defense (LTAMD) Sensor | 04 | U | 408,766 | 380,147 | | 380,147 |
| 77 | 0604115A | Technology Maturation Initiatives | 04 | U | 127,725 | 219,742 | | 219,742 |
| 78 | 0604117A | Maneuver - Short Range Air Defense (M-SHORAD) | 04 | U | 37,939 | 274,838 | | 274,838 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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| Line No | Program Element Number | Item | Act | Se c | FY 2024 Request |
|---------|------------------------|--|-----|------|-----------------|
| 59 | 0603774A | Night Vision Systems Advanced Development | 04 | U | 73,675 |
| 60 | 0603779A | Environmental Quality Technology - Dem/Val | 04 | U | 31,720 |
| 61 | 0603790A | NATO Research and Development | 04 | U | 4,143 |
| 62 | 0603801A | Aviation - Adv Dev | 04 | U | 1,502,160 |
| 63 | 0603804A | Logistics and Engineer Equipment - Adv Dev | 04 | U | 7,604 |
| 64 | 0603807A | Medical Systems - Adv Dev | 04 | U | 1,602 |
| 65 | 0603827A | Soldier Systems - Advanced Development | 04 | U | 27,681 |
| 66 | 0604017A | Robotics Development | 04 | U | 3,024 |
| 67 | 0604019A | Expanded Mission Area Missile (EMAM) | 04 | U | 97,018 |
| 68 | 0604020A | Cross Functional Team (CFT) Advanced Development & Prototyping | 04 | U | 117,557 |
| 69 | 0604035A | Low Earth Orbit (LEO) Satellite Capability | 04 | U | 38,851 |
| 70 | 0604036A | Multi-Domain Sensing System (MDSS) Adv Dev | 04 | U | 191,394 |
| 71 | 0604037A | Tactical Intel Targeting Access Node (TITAN) Adv Dev | 04 | U | 10,626 |
| 72 | 0604100A | Analysis Of Alternatives | 04 | U | 11,095 |
| 73 | 0604101A | Small Unmanned Aerial Vehicle (SUAV) (6.4) | 04 | U | 5,144 |
| 74 | 0604103A | Electronic Warfare Planning and Management Tool (EWPMT) | 04 | U | 2,260 |
| 75 | 0604113A | Future Tactical Unmanned Aircraft System (FTUAS) | 04 | U | 53,143 |
| 76 | 0604114A | Lower Tier Air Missile Defense (LTAMD) Sensor | 04 | U | 816,663 |
| 77 | 0604115A | Technology Maturation Initiatives | 04 | U | 281,314 |
| 78 | 0604117A | Maneuver - Short Range Air Defense (M-SHORAD) | 04 | U | 281,239 |

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| Line No | Program Element Number | Item | Act | Se c | FY 2022 | FY 2023 Less | FY 2023 | FY 2023 Total |
|--|------------------------|---|-----|------|------------------|-------------------------|--------------------------|------------------|
| | | | | | Actuals | Supplementals Enactment | Supplementals Enactment* | Enactment |
| 79 | 0604119A | Army Advanced Component Development & Prototyping | 04 | U | 179,483 | 198,111 | | 198,111 |
| 80 | 0604120A | Assured Positioning, Navigation and Timing (PNT) | 04 | U | 80,858 | 57,620 | | 57,620 |
| 81 | 0604121A | Synthetic Training Environment Refinement & Prototyping | 04 | U | 198,815 | 242,468 | | 242,468 |
| 82 | 0604134A | Counter Improvised-Threat Demonstration, Prototype Development, and Testing | 04 | U | 12,891 | 14,840 | | 14,840 |
| 83 | 0604135A | Strategic Mid-Range Fires | 04 | U | | 404,291 | | 404,291 |
| 84 | 0604182A | Hypersonics | 04 | U | 305,406 | 238,168 | | 238,168 |
| 85 | 0604403A | Future Interceptor | 04 | U | 6,643 | 8,179 | | 8,179 |
| 86 | 0604531A | Counter - Small Unmanned Aircraft Systems Advanced Development | 04 | U | 18,449 | 35,110 | | 35,110 |
| 87 | 0604541A | Unified Network Transport | 04 | U | 33,879 | 36,966 | | 36,966 |
| 88 | 0604644A | Mobile Medium Range Missile | 04 | U | 275,989 | | | |
| 89 | 0604785A | Integrated Base Defense (Budget Activity 4) | 04 | U | 2,040 | | | |
| 90 | 0305251A | Cyberspace Operations Forces and Force Support | 04 | U | 55,895 | 55,599 | | 55,599 |
| 999 | 999999999 | Classified Programs | 04 | U | | | | |
| Advanced Component Development & Prototypes | | | | | 3,799,417 | 4,631,111 | 6,000 | 4,637,111 |
| 91 | 0604201A | Aircraft Avionics | 05 | U | 6,411 | 3,335 | | 3,335 |
| 92 | 0604270A | Electronic Warfare Development | 05 | U | 29,683 | 4,140 | | 4,140 |
| 93 | 0604601A | Infantry Support Weapons | 05 | U | 77,027 | 83,329 | | 83,329 |
| 94 | 0604604A | Medium Tactical Vehicles | 05 | U | 9,177 | 22,163 | | 22,163 |
| 95 | 0604611A | JAVELIN | 05 | U | 8,202 | 16,186 | | 16,186 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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| Line No | Program Element Number | Item | Act | Se c | FY 2024 Request |
|---------|------------------------|---|-----|------|------------------|
| 79 | 0604119A | Army Advanced Component Development & Prototyping | 04 | U | 204,914 |
| 80 | 0604120A | Assured Positioning, Navigation and Timing (PNT) | 04 | U | 40,930 |
| 81 | 0604121A | Synthetic Training Environment Refinement & Prototyping | 04 | U | 109,714 |
| 82 | 0604134A | Counter Improvised-Threat Demonstration, Prototype Development, and Testing | 04 | U | 16,426 |
| 83 | 0604135A | Strategic Mid-Range Fires | 04 | U | 31,559 |
| 84 | 0604182A | Hypersonics | 04 | U | 43,435 |
| 85 | 0604403A | Future Interceptor | 04 | U | 8,040 |
| 86 | 0604531A | Counter - Small Unmanned Aircraft Systems Advanced Development | 04 | U | 64,242 |
| 87 | 0604541A | Unified Network Transport | 04 | U | 40,915 |
| 88 | 0604644A | Mobile Medium Range Missile | 04 | U | |
| 89 | 0604785A | Integrated Base Defense (Budget Activity 4) | 04 | U | |
| 90 | 0305251A | Cyberspace Operations Forces and Force Support | 04 | U | |
| 999 | 999999999 | Classified Programs | 04 | U | 19,200 |
| | | Advanced Component Development & Prototypes | | | 4,420,315 |
| 91 | 0604201A | Aircraft Avionics | 05 | U | 13,673 |
| 92 | 0604270A | Electronic Warfare Development | 05 | U | 12,789 |
| 93 | 0604601A | Infantry Support Weapons | 05 | U | 64,076 |
| 94 | 0604604A | Medium Tactical Vehicles | 05 | U | 28,226 |
| 95 | 0604611A | JAVELIN | 05 | U | 7,827 |

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| Line No | Program Element Number | Item | Act | Se c | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment* | FY 2023 Total Enactment |
|---------|------------------------|---|-----|------|-----------------|--------------------------------------|----------------------------------|-------------------------|
| 96 | 0604622A | Family of Heavy Tactical Vehicles | 05 | U | 27,406 | 53,014 | | 53,014 |
| 97 | 0604633A | Air Traffic Control | 05 | U | 4,244 | 2,623 | | 2,623 |
| 98 | 0604641A | Tactical Unmanned Ground Vehicle (TUGV) | 05 | U | | 109,849 | | 109,849 |
| 99 | 0604642A | Light Tactical Wheeled Vehicles | 05 | U | 1,980 | | | |
| 100 | 0604645A | Armored Systems Modernization (ASM) - Eng Dev | 05 | U | 118,296 | 63,131 | | 63,131 |
| 101 | 0604710A | Night Vision Systems - Eng Dev | 05 | U | 41,831 | 92,951 | | 92,951 |
| 102 | 0604713A | Combat Feeding, Clothing, and Equipment | 05 | U | 1,598 | 1,566 | | 1,566 |
| 103 | 0604715A | Non-System Training Devices - Eng Dev | 05 | U | 28,605 | 18,588 | | 18,588 |
| 104 | 0604741A | Air Defense Command, Control and Intelligence - Eng Dev | 05 | U | 58,633 | 55,541 | | 55,541 |
| 105 | 0604742A | Constructive Simulation Systems Development | 05 | U | 21,424 | 29,481 | | 29,481 |
| 106 | 0604746A | Automatic Test Equipment Development | 05 | U | 8,486 | 5,178 | | 5,178 |
| 107 | 0604760A | Distributive Interactive Simulations (DIS) - Eng Dev | 05 | U | 12,182 | 8,189 | | 8,189 |
| 108 | 0604798A | Brigade Analysis, Integration and Evaluation | 05 | U | 20,976 | 21,086 | | 21,086 |
| 109 | 0604802A | Weapons and Munitions - Eng Dev | 05 | U | 287,787 | 285,778 | 600 | 286,378 |
| 110 | 0604804A | Logistics and Engineer Equipment - Eng Dev | 05 | U | 49,201 | 75,669 | | 75,669 |
| 111 | 0604805A | Command, Control, Communications Systems - Eng Dev | 05 | U | 19,372 | 44,993 | | 44,993 |
| 112 | 0604807A | Medical Materiel/Medical Biological Defense Equipment - Eng Dev | 05 | U | 43,023 | 5,513 | | 5,513 |
| 113 | 0604808A | Landmine Warfare/Barrier - Eng Dev | 05 | U | 28,622 | 37,150 | | 37,150 |
| 114 | 0604818A | Army Tactical Command & Control Hardware & Software | 05 | U | 146,291 | 131,190 | | 131,190 |
| 115 | 0604820A | Radar Development | 05 | U | 124,832 | 71,259 | | 71,259 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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| Line No | Program Element Number | Item | Act | Se c | FY 2024 Request |
|---------|------------------------|---|-----|------|-----------------|
| 96 | 0604622A | Family of Heavy Tactical Vehicles | 05 | U | 44,197 |
| 97 | 0604633A | Air Traffic Control | 05 | U | 1,134 |
| 98 | 0604641A | Tactical Unmanned Ground Vehicle (TUGV) | 05 | U | 142,125 |
| 99 | 0604642A | Light Tactical Wheeled Vehicles | 05 | U | 53,564 |
| 100 | 0604645A | Armored Systems Modernization (ASM) - Eng Dev | 05 | U | 102,201 |
| 101 | 0604710A | Night Vision Systems - Eng Dev | 05 | U | 48,720 |
| 102 | 0604713A | Combat Feeding, Clothing, and Equipment | 05 | U | 2,223 |
| 103 | 0604715A | Non-System Training Devices - Eng Dev | 05 | U | 21,441 |
| 104 | 0604741A | Air Defense Command, Control and Intelligence - Eng Dev | 05 | U | 74,738 |
| 105 | 0604742A | Constructive Simulation Systems Development | 05 | U | 30,985 |
| 106 | 0604746A | Automatic Test Equipment Development | 05 | U | 13,626 |
| 107 | 0604760A | Distributive Interactive Simulations (DIS) - Eng Dev | 05 | U | 8,802 |
| 108 | 0604798A | Brigade Analysis, Integration and Evaluation | 05 | U | 20,828 |
| 109 | 0604802A | Weapons and Munitions - Eng Dev | 05 | U | 243,851 |
| 110 | 0604804A | Logistics and Engineer Equipment - Eng Dev | 05 | U | 37,420 |
| 111 | 0604805A | Command, Control, Communications Systems - Eng Dev | 05 | U | 34,214 |
| 112 | 0604807A | Medical Materiel/Medical Biological Defense Equipment - Eng Dev | 05 | U | 6,496 |
| 113 | 0604808A | Landmine Warfare/Barrier - Eng Dev | 05 | U | 13,581 |
| 114 | 0604818A | Army Tactical Command & Control Hardware & Software | 05 | U | 168,574 |
| 115 | 0604820A | Radar Development | 05 | U | 94,944 |

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| Line No | Program Element Number | Item | Act | Se c | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment* | FY 2023 Total Enactment |
|---------|------------------------|--|-----|------|-----------------|--------------------------------------|----------------------------------|-------------------------|
| 116 | 0604822A | General Fund Enterprise Business System (GFEBs) | 05 | U | 15,395 | 10,402 | | 10,402 |
| 117 | 0604827A | Soldier Systems - Warrior Dem/Val | 05 | U | 6,219 | 19,408 | | 19,408 |
| 118 | 0604852A | Suite of Survivability Enhancement Systems - EMD | 05 | U | 93,207 | 100,384 | | 100,384 |
| 119 | 0604854A | Artillery Systems - EMD | 05 | U | 25,000 | 48,106 | | 48,106 |
| 120 | 0605013A | Information Technology Development | 05 | U | 125,109 | 104,134 | | 104,134 |
| 121 | 0605018A | Integrated Personnel and Pay System-Army (IPPS-A) | 05 | U | 65,230 | 67,519 | | 67,519 |
| 122 | 0605028A | Armored Multi-Purpose Vehicle (AMPV) | 05 | U | 34,262 | | | |
| 123 | 0605030A | Joint Tactical Network Center (JTNC) | 05 | U | 15,752 | 17,936 | | 17,936 |
| 124 | 0605031A | Joint Tactical Network (JTN) | 05 | U | 27,849 | 30,150 | | 30,150 |
| 125 | 0605035A | Common Infrared Countermeasures (CIRCM) | 05 | U | 15,982 | 11,523 | | 11,523 |
| 126 | 0605036A | Combating Weapons of Mass Destruction (CWMD) Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) | 05 | U | | | | |
| 127 | 0605038A | Sensor Suite | 05 | U | 7,340 | | | |
| 128 | 0605041A | Defensive CYBER Tool Development | 05 | U | 18,811 | 39,029 | | 39,029 |
| 129 | 0605042A | Tactical Network Radio Systems (Low-Tier) | 05 | U | 27,688 | 4,426 | | 4,426 |
| 130 | 0605047A | Contract Writing System | 05 | U | 20,195 | 13,742 | | 13,742 |
| 131 | 0605049A | Missile Warning System Modernization (MWSM) | 05 | U | | | | |
| 132 | 0605051A | Aircraft Survivability Development | 05 | U | 60,127 | 19,123 | | 19,123 |
| 133 | 0605052A | Indirect Fire Protection Capability Inc 2 - Block 1 | 05 | U | 175,604 | 131,093 | | 131,093 |
| 134 | 0605053A | Ground Robotics | 05 | U | 15,763 | 26,809 | | 26,809 |
| 135 | 0605054A | Emerging Technology Initiatives | 05 | U | 219,284 | 244,047 | | 244,047 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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|---------|------------------------|--|-----|------|-----------------|
| 116 | 0604822A | General Fund Enterprise Business System (GFEBs) | 05 | U | 2,965 |
| 117 | 0604827A | Soldier Systems - Warrior Dem/Val | 05 | U | 11,333 |
| 118 | 0604852A | Suite of Survivability Enhancement Systems - EMD | 05 | U | 79,250 |
| 119 | 0604854A | Artillery Systems - EMD | 05 | U | 42,490 |
| 120 | 0605013A | Information Technology Development | 05 | U | 104,024 |
| 121 | 0605018A | Integrated Personnel and Pay System-Army (IPPS-A) | 05 | U | 102,084 |
| 122 | 0605028A | Armored Multi-Purpose Vehicle (AMPV) | 05 | U | |
| 123 | 0605030A | Joint Tactical Network Center (JTNC) | 05 | U | 18,662 |
| 124 | 0605031A | Joint Tactical Network (JTN) | 05 | U | 30,328 |
| 125 | 0605035A | Common Infrared Countermeasures (CIRCM) | 05 | U | 11,509 |
| 126 | 0605036A | Combating Weapons of Mass Destruction (CWMD) Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) | 05 | U | 1,050 |
| 127 | 0605038A | Sensor Suite | 05 | U | |
| 128 | 0605041A | Defensive CYBER Tool Development | 05 | U | 27,714 |
| 129 | 0605042A | Tactical Network Radio Systems (Low-Tier) | 05 | U | 4,318 |
| 130 | 0605047A | Contract Writing System | 05 | U | 16,355 |
| 131 | 0605049A | Missile Warning System Modernization (MWSM) | 05 | U | 27,571 |
| 132 | 0605051A | Aircraft Survivability Development | 05 | U | 24,900 |
| 133 | 0605052A | Indirect Fire Protection Capability Inc 2 - Block 1 | 05 | U | 196,248 |
| 134 | 0605053A | Ground Robotics | 05 | U | 35,319 |
| 135 | 0605054A | Emerging Technology Initiatives | 05 | U | 201,274 |

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| Line No | Program Element Number | Item | Act | Se c | FY 2022 | FY 2023 Less | FY 2023 | FY 2023 Total |
|---------|------------------------|--|-----|------|---------|-------------------------|-------------------------|---------------|
| | | | | | Actuals | Supplementals Enactment | Supplementals Enactment | Enactment |
| 136 | 0605143A | Biometrics Enabling Capability (BEC) | 05 | U | 4,326 | 11,091 | | 11,091 |
| 137 | 0605144A | Next Generation Load Device - Medium | 05 | U | 14,835 | 22,439 | | 22,439 |
| 138 | 0605145A | Medical Products and Support Systems Development | 05 | U | 927 | | | |
| 139 | 0605148A | Tactical Intel Targeting Access Node (TITAN) EMD | 05 | U | 54,972 | 108,987 | | 108,987 |
| 140 | 0605203A | Army System Development & Demonstration | 05 | U | 122,175 | 143,616 | | 143,616 |
| 141 | 0605205A | Small Unmanned Aerial Vehicle (SUAV) (6.5) | 05 | U | 2,192 | 6,530 | | 6,530 |
| 142 | 0605206A | CI and HUMINT Equipment Program-Army (CIHEP-A) | 05 | U | | | | |
| 143 | 0605216A | Joint Targeting Integrated Command and Coordination Suite (JTIC2S) | 05 | U | | | | |
| 144 | 0605224A | Multi-Domain Intelligence | 05 | U | 9,313 | 6,008 | | 6,008 |
| 145 | 0605225A | SIO Capability Development | 05 | U | 22,713 | | | |
| 146 | 0605231A | Precision Strike Missile (PrSM) | 05 | U | 181,574 | 259,506 | | 259,506 |
| 147 | 0605232A | Hypersonics EMD | 05 | U | 107,404 | 633,499 | | 633,499 |
| 148 | 0605233A | Accessions Information Environment (AIE) | 05 | U | 16,177 | 10,088 | | 10,088 |
| 149 | 0605235A | Strategic Mid-Range Capability | 05 | U | | 5,016 | | 5,016 |
| 150 | 0605236A | Integrated Tactical Communications | 05 | U | | 12,447 | | 12,447 |
| 151 | 0605450A | Joint Air-to-Ground Missile (JAGM) | 05 | U | 2,467 | 2,366 | | 2,366 |
| 152 | 0605457A | Army Integrated Air and Missile Defense (AIAMD) | 05 | U | 154,257 | 263,545 | | 263,545 |
| 153 | 0605531A | Counter - Small Unmanned Aircraft Systems Sys Dev & Demonstration | 05 | U | 49,667 | 14,892 | | 14,892 |
| 154 | 0605625A | Manned Ground Vehicle | 05 | U | 194,936 | 554,925 | | 554,925 |
| 155 | 0605766A | National Capabilities Integration (MIP) | 05 | U | 13,454 | 17,030 | | 17,030 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Mar 2023

Appropriation: 2040A Research, Development, Test and Evaluation, Army

| <u>Line</u> <u>No</u> | <u>Program</u> <u>Element</u> <u>Number</u> | <u>Item</u> | <u>Act</u> | <u>Se</u> <u>c</u> | <u>FY 2024</u> <u>Request</u> |
|--------------------------|---|---|------------|-----------------------|----------------------------------|
| 136 | 0605143A | Biometrics Enabling Capability (BEC) | 05 | U | |
| 137 | 0605144A | Next Generation Load Device - Medium | 05 | U | 36,970 |
| 138 | 0605145A | Medical Products and Support Systems Development | 05 | U | |
| 139 | 0605148A | Tactical Intel Targeting Access Node (TITAN) EMD | 05 | U | 132,136 |
| 140 | 0605203A | Army System Development & Demonstration | 05 | U | 81,657 |
| 141 | 0605205A | Small Unmanned Aerial Vehicle (SUAV) (6.5) | 05 | U | 31,284 |
| 142 | 0605206A | CI and HUMINT Equipment Program-Army (CIHEP-A) Joint Targeting Integrated Command and Coordination Suite | 05 | U | 2,170 |
| 143 | 0605216A | (JTIC2S) | 05 | U | 9,290 |
| 144 | 0605224A | Multi-Domain Intelligence | 05 | U | 41,003 |
| 145 | 0605225A | SIO Capability Development | 05 | U | |
| 146 | 0605231A | Precision Strike Missile (PrSM) | 05 | U | 272,786 |
| 147 | 0605232A | Hypersonics EMD | 05 | U | 900,920 |
| 148 | 0605233A | Accessions Information Environment (AIE) | 05 | U | 27,361 |
| 149 | 0605235A | Strategic Mid-Range Capability | 05 | U | 348,855 |
| 150 | 0605236A | Integrated Tactical Communications | 05 | U | 22,901 |
| 151 | 0605450A | Joint Air-to-Ground Missile (JAGM) | 05 | U | 3,014 |
| 152 | 0605457A | Army Integrated Air and Missile Defense (AIAMD) Counter - Small Unmanned Aircraft Systems Sys Dev & | 05 | U | 284,095 |
| 153 | 0605531A | Demonstration | 05 | U | 36,016 |
| 154 | 0605625A | Manned Ground Vehicle | 05 | U | 996,653 |
| 155 | 0605766A | National Capabilities Integration (MIP) | 05 | U | 15,129 |

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Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment | FY 2023 Total Enactment |
|---|------------------------|--|-----|------|------------------|--------------------------------------|---------------------------------|-------------------------|
| 156 | 0605812A | Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph | 05 | U | 2,470 | 9,376 | | 9,376 |
| 157 | 0605830A | Aviation Ground Support Equipment | 05 | U | 1,158 | 2,959 | | 2,959 |
| 158 | 0303032A | TROJAN - RH12 | 05 | U | 3,362 | 3,761 | | 3,761 |
| 159 | 0304270A | Electronic Warfare Development | 05 | U | 75,520 | 99,938 | | 99,938 |
| System Development & Demonstration | | | | | 3,178,005 | 4,317,752 | 600 | 4,318,352 |
| 160 | 0604256A | Threat Simulator Development | 06 | U | 60,749 | 138,937 | | 138,937 |
| 161 | 0604258A | Target Systems Development | 06 | U | 41,769 | 64,132 | | 64,132 |
| 162 | 0604759A | Major T&E Investment | 06 | U | 91,130 | 142,031 | | 142,031 |
| 163 | 0605103A | Rand Arroyo Center | 06 | U | 31,087 | 33,631 | | 33,631 |
| 164 | 0605301A | Army Kwajalein Atoll | 06 | U | 242,279 | 309,005 | | 309,005 |
| 165 | 0605326A | Concepts Experimentation Program | 06 | U | 80,386 | 86,824 | | 86,824 |
| 166 | 0605502A | Small Business Innovative Research | 06 | U | 374,118 | | | |
| 167 | 0605601A | Army Test Ranges and Facilities | 06 | U | 362,223 | 417,567 | | 417,567 |
| 168 | 0605602A | Army Technical Test Instrumentation and Targets | 06 | U | 57,584 | 67,962 | | 67,962 |
| 169 | 0605604A | Survivability/Lethality Analysis | 06 | U | 35,042 | 36,500 | | 36,500 |
| 170 | 0605606A | Aircraft Certification | 06 | U | 2,398 | 4,777 | | 4,777 |
| 171 | 0605702A | Meteorological Support to RDT&E Activities | 06 | U | 6,389 | 6,958 | | 6,958 |
| 172 | 0605706A | Materiel Systems Analysis | 06 | U | 20,771 | 22,004 | | 22,004 |
| 173 | 0605709A | Exploitation of Foreign Items | 06 | U | 13,631 | 6,186 | | 6,186 |
| 174 | 0605712A | Support of Operational Testing | 06 | U | 54,797 | 70,718 | | 70,718 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2024 Request |
|---|------------------------|--|-----|------|------------------|
| 156 | 0605812A | Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph | 05 | U | 27,243 |
| 157 | 0605830A | Aviation Ground Support Equipment | 05 | U | 1,167 |
| 158 | 0303032A | TROJAN - RH12 | 05 | U | 3,879 |
| 159 | 0304270A | Electronic Warfare Development | 05 | U | 137,186 |
| System Development & Demonstration | | | | | 5,639,364 |
| 160 | 0604256A | Threat Simulator Development | 06 | U | 38,492 |
| 161 | 0604258A | Target Systems Development | 06 | U | 11,873 |
| 162 | 0604759A | Major T&E Investment | 06 | U | 76,167 |
| 163 | 0605103A | Rand Arroyo Center | 06 | U | 37,078 |
| 164 | 0605301A | Army Kwajalein Atoll | 06 | U | 314,872 |
| 165 | 0605326A | Concepts Experimentation Program | 06 | U | 95,551 |
| 166 | 0605502A | Small Business Innovative Research | 06 | U | |
| 167 | 0605601A | Army Test Ranges and Facilities | 06 | U | 439,118 |
| 168 | 0605602A | Army Technical Test Instrumentation and Targets | 06 | U | 42,220 |
| 169 | 0605604A | Survivability/Lethality Analysis | 06 | U | 37,518 |
| 170 | 0605606A | Aircraft Certification | 06 | U | 2,718 |
| 171 | 0605702A | Meteorological Support to RDT&E Activities | 06 | U | |
| 172 | 0605706A | Materiel Systems Analysis | 06 | U | 26,902 |
| 173 | 0605709A | Exploitation of Foreign Items | 06 | U | 7,805 |
| 174 | 0605712A | Support of Operational Testing | 06 | U | 75,133 |

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Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment* | FY 2023 Total Enactment |
|---------|------------------------|--|-----|------|------------------|--------------------------------------|----------------------------------|-------------------------|
| 175 | 0605716A | Army Evaluation Center | 06 | U | 65,693 | 67,058 | | 67,058 |
| 176 | 0605718A | Army Modeling & Sim X-Cmd Collaboration & Integ | 06 | U | 2,537 | 6,097 | | 6,097 |
| 177 | 0605801A | Programwide Activities | 06 | U | 90,443 | 89,793 | | 89,793 |
| 178 | 0605803A | Technical Information Activities | 06 | U | 31,174 | 37,652 | | 37,652 |
| 179 | 0605805A | Munitions Standardization, Effectiveness and Safety | 06 | U | 54,922 | 60,645 | | 60,645 |
| 180 | 0605857A | Environmental Quality Technology Mgmt Support | 06 | U | 1,724 | 1,912 | | 1,912 |
| 181 | 0605898A | Army Direct Report Headquarters - R&D - MHA | 06 | U | 48,798 | 53,271 | | 53,271 |
| 182 | 0606002A | Ronald Reagan Ballistic Missile Defense Test Site | 06 | U | 78,187 | 89,602 | | 89,602 |
| 183 | 0606003A | CounterIntel and Human Intel Modernization | 06 | U | 10,641 | 1,424 | | 1,424 |
| 184 | 0606105A | Medical Program-Wide Activities | 06 | U | 37,616 | | | |
| 185 | 0606942A | Assessments and Evaluations Cyber Vulnerabilities | 06 | U | 5,466 | 5,816 | | 5,816 |
| 186 | 0909999A | Financing for Cancelled Account Adjustments | 06 | U | 101 | | | |
| | | Management Support | | | 1,901,655 | 1,820,502 | | 1,820,502 |
| 187 | 0603778A | MLRS Product Improvement Program | 07 | U | 11,865 | 18,463 | | 18,463 |
| 188 | 0605024A | Anti-Tamper Technology Support | 07 | U | 8,544 | 9,284 | | 9,284 |
| 189 | 0607131A | Weapons and Munitions Product Improvement Programs | 07 | U | 39,994 | 54,674 | 2,500 | 57,174 |
| 190 | 0607136A | Blackhawk Product Improvement Program | 07 | U | 14,599 | | | |
| 191 | 0607137A | Chinook Product Improvement Program | 07 | U | 65,960 | 67,513 | | 67,513 |
| 192 | 0607139A | Improved Turbine Engine Program | 07 | U | 250,533 | 228,036 | | 228,036 |
| 193 | 0607142A | Aviation Rocket System Product Improvement and Development | 07 | U | 8,831 | 11,312 | | 11,312 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2024 Request |
|---------|---------------------------|--|-----|------|------------------|
| 175 | 0605716A | Army Evaluation Center | 06 | U | 71,118 |
| 176 | 0605718A | Army Modeling & Sim X-Cmd Collaboration & Integ | 06 | U | 11,204 |
| 177 | 0605801A | Programwide Activities | 06 | U | 93,895 |
| 178 | 0605803A | Technical Information Activities | 06 | U | 31,327 |
| 179 | 0605805A | Munitions Standardization, Effectiveness and Safety | 06 | U | 50,409 |
| 180 | 0605857A | Environmental Quality Technology Mgmt Support | 06 | U | 1,629 |
| 181 | 0605898A | Army Direct Report Headquarters - R&D - MHA | 06 | U | 55,843 |
| 182 | 0606002A | Ronald Reagan Ballistic Missile Defense Test Site | 06 | U | 91,340 |
| 183 | 0606003A | CounterIntel and Human Intel Modernization | 06 | U | 6,348 |
| 184 | 0606105A | Medical Program-Wide Activities | 06 | U | |
| 185 | 0606942A | Assessments and Evaluations Cyber Vulnerabilities | 06 | U | 6,025 |
| 186 | 0909999A | Financing for Cancelled Account Adjustments | 06 | U | |
| | Management Support | | | | 1,624,585 |
| 187 | 0603778A | MLRS Product Improvement Program | 07 | U | 14,465 |
| 188 | 0605024A | Anti-Tamper Technology Support | 07 | U | 7,472 |
| 189 | 0607131A | Weapons and Munitions Product Improvement Programs | 07 | U | 8,425 |
| 190 | 0607136A | Blackhawk Product Improvement Program | 07 | U | 1,507 |
| 191 | 0607137A | Chinook Product Improvement Program | 07 | U | 9,265 |
| 192 | 0607139A | Improved Turbine Engine Program | 07 | U | 201,247 |
| 193 | 0607142A | Aviation Rocket System Product Improvement and Development | 07 | U | 3,014 |

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Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment* | FY 2023 Total Enactment |
|---------|------------------------|---|-----|------|-----------------|--------------------------------------|----------------------------------|-------------------------|
| 194 | 0607143A | Unmanned Aircraft System Universal Products | 07 | U | 4,426 | 10,512 | | 10,512 |
| 195 | 0607145A | Apache Future Development | 07 | U | 9,700 | 25,074 | | 25,074 |
| 196 | 0607148A | AN/TPQ-53 Counterfire Target Acquisition Radar System | 07 | U | 46,009 | 61,559 | | 61,559 |
| 197 | 0607150A | Intel Cyber Development | 07 | U | 3,611 | 13,343 | | 13,343 |
| 198 | 0607312A | Army Operational Systems Development | 07 | U | 28,029 | 26,131 | | 26,131 |
| 199 | 0607313A | Electronic Warfare Development | 07 | U | 5,673 | 6,432 | | 6,432 |
| 200 | 0607315A | Enduring Turbine Engines and Power Systems | 07 | U | | | | |
| 201 | 0607665A | Family of Biometrics | 07 | U | 1,101 | 1,114 | | 1,114 |
| 202 | 0607865A | Patriot Product Improvement | 07 | U | 125,851 | 152,312 | | 152,312 |
| 203 | 0203728A | Joint Automated Deep Operation Coordination System (JADOCs) | 07 | U | 24,556 | 19,311 | | 19,311 |
| 204 | 0203735A | Combat Vehicle Improvement Programs | 07 | U | 272,438 | 194,229 | | 194,229 |
| 205 | 0203743A | 155mm Self-Propelled Howitzer Improvements | 07 | U | 168,683 | 116,510 | | 116,510 |
| 206 | 0203744A | Aircraft Modifications/Product Improvement Programs | 07 | U | 10,000 | | | |
| 207 | 0203752A | Aircraft Engine Component Improvement Program | 07 | U | 127 | 148 | | 148 |
| 208 | 0203758A | Digitization | 07 | U | 3,759 | | | |
| 209 | 0203801A | Missile/Air Defense Product Improvement Program | 07 | U | 122 | 3,109 | | 3,109 |
| 210 | 0203802A | Other Missile Product Improvement Programs | 07 | U | 9,956 | 9,027 | | 9,027 |
| 211 | 0205412A | Environmental Quality Technology - Operational System Dev | 07 | U | 253 | 793 | | 793 |
| 212 | 0205778A | Guided Multiple-Launch Rocket System (GMLRS) | 07 | U | 58,516 | 20,180 | | 20,180 |
| 213 | 0208053A | Joint Tactical Ground System | 07 | U | 11,379 | 8,813 | | 8,813 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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| <u>Line No</u> | <u>Program Element Number</u> | <u>Item</u> | <u>Act</u> | <u>Se c</u> | <u>FY 2024 Request</u> |
|----------------|-------------------------------|---|------------|-------------|------------------------|
| 194 | 0607143A | Unmanned Aircraft System Universal Products | 07 | U | 25,393 |
| 195 | 0607145A | Apache Future Development | 07 | U | 10,547 |
| 196 | 0607148A | AN/TPQ-53 Counterfire Target Acquisition Radar System | 07 | U | 54,167 |
| 197 | 0607150A | Intel Cyber Development | 07 | U | 4,345 |
| 198 | 0607312A | Army Operational Systems Development | 07 | U | 19,000 |
| 199 | 0607313A | Electronic Warfare Development | 07 | U | 6,389 |
| 200 | 0607315A | Enduring Turbine Engines and Power Systems | 07 | U | 2,411 |
| 201 | 0607665A | Family of Biometrics | 07 | U | 797 |
| 202 | 0607865A | Patriot Product Improvement | 07 | U | 177,197 |
| 203 | 0203728A | Joint Automated Deep Operation Coordination System (JADOCS) | 07 | U | 42,177 |
| 204 | 0203735A | Combat Vehicle Improvement Programs | 07 | U | 146,635 |
| 205 | 0203743A | 155mm Self-Propelled Howitzer Improvements | 07 | U | 122,902 |
| 206 | 0203744A | Aircraft Modifications/Product Improvement Programs | 07 | U | |
| 207 | 0203752A | Aircraft Engine Component Improvement Program | 07 | U | 146 |
| 208 | 0203758A | Digitization | 07 | U | 1,515 |
| 209 | 0203801A | Missile/Air Defense Product Improvement Program | 07 | U | 4,520 |
| 210 | 0203802A | Other Missile Product Improvement Programs | 07 | U | 10,044 |
| 211 | 0205412A | Environmental Quality Technology - Operational System Dev | 07 | U | 281 |
| 212 | 0205778A | Guided Multiple-Launch Rocket System (GMLRS) | 07 | U | 75,952 |
| 213 | 0208053A | Joint Tactical Ground System | 07 | U | 203 |

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Appropriation: 2040A Research, Development, Test and Evaluation, Army

| Line No | Program Element Number | Item | Act | Se c | FY 2022 Actuals | FY 2023 Less Supplementals Enactment | FY 2023 Supplementals Enactment | FY 2023 Total Enactment |
|---|------------------------|--|-----|------|-------------------|--------------------------------------|---------------------------------|-------------------------|
| 216 | 0303028A | Security and Intelligence Activities | 07 | U | 24,506 | | | |
| 217 | 0303140A | Information Systems Security Program | 07 | U | 15,680 | 17,209 | | 17,209 |
| 218 | 0303141A | Global Combat Support System | 07 | U | 43,643 | 22,600 | | 22,600 |
| 219 | 0303142A | SATCOM Ground Environment (SPACE) | 07 | U | 16,186 | 18,297 | | 18,297 |
| 222 | 0305179A | Integrated Broadcast Service (IBS) | 07 | U | 5,430 | 9,926 | | 9,926 |
| 223 | 0305204A | Tactical Unmanned Aerial Vehicles | 07 | U | 8,410 | 4,500 | | 4,500 |
| 224 | 0305206A | Airborne Reconnaissance Systems | 07 | U | 11,782 | 17,165 | | 17,165 |
| 225 | 0305219A | MQ-1C Gray Eagle UAS | 07 | U | | | | |
| 226 | 0307665A | Biometrics Enabled Intelligence | 07 | U | 2,066 | | | |
| 227 | 0708045A | End Item Industrial Preparedness Activities | 07 | U | 101,466 | 132,270 | | 132,270 |
| 999 | 999999999 | Classified Programs | 07 | U | 2,993 | 6,664 | | 6,664 |
| Operational Systems Development | | | | | 1,416,677 | 1,286,510 | 2,500 | 1,289,010 |
| 228 | 0608041A | Defensive CYBER - Software Prototype Development | 08 | U | 108,041 | 94,831 | | 94,831 |
| Software And Digital Technology Pilot Programs | | | | | 108,041 | 94,831 | | 94,831 |
| Total Research, Development, Test and Evaluation, Army | | | | | 14,660,654 | 17,142,121 | 9,100 | 17,151,221 |

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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|---|---|--|-----|------|-------------------|
| 216 | 0303028A | Security and Intelligence Activities | 07 | U | 301 |
| 217 | 0303140A | Information Systems Security Program | 07 | U | 15,323 |
| 218 | 0303141A | Global Combat Support System | 07 | U | 13,082 |
| 219 | 0303142A | SATCOM Ground Environment (SPACE) | 07 | U | 26,838 |
| 222 | 0305179A | Integrated Broadcast Service (IBS) | 07 | U | 9,456 |
| 223 | 0305204A | Tactical Unmanned Aerial Vehicles | 07 | U | |
| 224 | 0305206A | Airborne Reconnaissance Systems | 07 | U | |
| 225 | 0305219A | MQ-1C Gray Eagle UAS | 07 | U | 6,629 |
| 226 | 0307665A | Biometrics Enabled Intelligence | 07 | U | |
| 227 | 0708045A | End Item Industrial Preparedness Activities | 07 | U | 75,317 |
| 999 | 999999999 | Classified Programs | 07 | U | 8,786 |
| | Operational Systems Development | | | | 1,105,748 |
| 228 | 0608041A | Defensive CYBER - Software Prototype Development | 08 | U | 83,570 |
| | Software And Digital Technology Pilot Programs | | | | 83,570 |
| Total Research, Development, Test and Evaluation, Army | | | | | 15,775,381 |

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| 188 | 07 | 0607131A | Weapons and Munitions Product Improvement Programs..... | Volume 4b - 24 |
| 189 | 07 | 0607136A | Blackhawk Product Improvement Program..... | Volume 4b - 67 |
| 190 | 07 | 0607137A | Chinook Product Improvement Program..... | Volume 4b - 76 |
| 191 | 07 | 0607139A | Improved Turbine Engine Program..... | Volume 4b - 87 |
| 192 | 07 | 0607142A | Aviation Rocket System Product Improvement and Development..... | Volume 4b - 97 |
| 193 | 07 | 0607143A | Unmanned Aircraft System Universal Products..... | Volume 4b - 107 |
| 194 | 07 | 0607145A | Apache Future Development..... | Volume 4b - 116 |
| 195 | 07 | 0607148A | AN/TPQ-53 Counterfire Target Acquisition Radar System..... | Volume 4b - 123 |
| 196 | 07 | 0607150A | Intel Cyber Development..... | Volume 4b - 133 |
| 197 | 07 | 0607312A | Army Operational Systems Development..... | Volume 4b - 139 |
| 198 | 07 | 0607313A | Electronic Warfare Development..... | Volume 4b - 140 |
| 199 | 07 | 0607315A | Enduring Turbine Engines and Power Systems..... | Volume 4b - 148 |
| 200 | 07 | 0607665A | Family of Biometrics..... | Volume 4b - 155 |
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| 207 | 07 | 0203758A | Digitization..... | Volume 4b - 257 |
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| 209 | 07 | 0203802A | Other Missile Product Improvement Programs..... | Volume 4b - 273 |
| 210 | 07 | 0205412A | Environmental Quality Technology - Operational System Dev..... | Volume 4b - 285 |
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| 215 | 07 | 0303140A | Information Systems Security Program..... | Volume 4b - 329 |
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| Apache Future Development | 0607145A | 194 | 07..... | Volume 4b - 116 |
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| Digitization | 0203758A | 207 | 07..... | Volume 4b - 257 |
| Electronic Warfare Development | 0607313A | 198 | 07..... | Volume 4b - 140 |
| End Item Industrial Preparedness Activities | 0708045A | 223 | 07..... | Volume 4b - 446 |
| Enduring Turbine Engines and Power Systems | 0607315A | 199 | 07..... | Volume 4b - 148 |

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| Family of Biometrics | 0607665A | 200 | 07..... | Volume 4b - 155 |
| Global Combat Support System | 0303141A | 216 | 07..... | Volume 4b - 350 |
| Guided Multiple-Launch Rocket System (GMLRS) | 0205778A | 211 | 07..... | Volume 4b - 291 |
| Improved Turbine Engine Program | 0607139A | 191 | 07..... | Volume 4b - 87 |
| Information Systems Security Program | 0303140A | 215 | 07..... | Volume 4b - 329 |
| Integrated Broadcast Service (IBS) | 0305179A | 218 | 07..... | Volume 4b - 394 |
| Intel Cyber Development | 0607150A | 196 | 07..... | Volume 4b - 133 |
| Joint Automated Deep Operation Coordination System (JADOCS) | 0203728A | 202 | 07..... | Volume 4b - 174 |
| Joint Tactical Ground System | 0208053A | 212 | 07..... | Volume 4b - 309 |
| MLRS Product Improvement Program | 0603778A | 186 | 07..... | Volume 4b - 1 |
| MQ-1 Gray Eagle UAV | 0305219A | 221 | 07..... | Volume 4b - 434 |
| Missile/Air Defense Product Improvement Program | 0203801A | 208 | 07..... | Volume 4b - 264 |
| Other Missile Product Improvement Programs | 0203802A | 209 | 07..... | Volume 4b - 273 |
| Patriot Product Improvement | 0607865A | 201 | 07..... | Volume 4b - 162 |
| SATCOM Ground Environment (SPACE) | 0303142A | 217 | 07..... | Volume 4b - 368 |
| Security and Intelligence Activities | 0303028A | 214 | 07..... | Volume 4b - 318 |
| Tactical Unmanned Aerial Vehicles | 0305204A | 219 | 07..... | Volume 4b - 402 |
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| Weapons and Munitions Product Improvement Programs | 0607131A | 188 | 07..... | Volume 4b - 24 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|--|--|
| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program |
|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 11.865 | 18.463 | 14.465 | - | 14.465 | 14.159 | 9.338 | 9.705 | 9.813 | 0.000 | 87.808 |
| 093: Multi-Launch Rocket System (MLRS) | - | 4.792 | 10.176 | 10.233 | - | 10.233 | 9.927 | 5.101 | 5.422 | 5.482 | 0.000 | 51.133 |
| DX8: HIMARS Product Improvement Program | - | 7.073 | 8.287 | 4.232 | - | 4.232 | 4.232 | 4.237 | 4.283 | 4.331 | 0.000 | 36.675 |

A. Mission Description and Budget Item Justification

Program Element 0603778A MLRS Product Improvement Program supports development and testing of the Army's rocket launcher fleet, including the Multiple Launch Rocket System (MLRS) launcher and the High Mobility Artillery Rocket System (HIMARS) launcher. MLRS and HIMARS launchers support the Army's number one priority modernization effort, Long Range Precision Fires. Updated launchers are required to fire current and future munitions such as the Precision Strike Missile (PrSM) and Extended Range (ER) Guided Multiple Launch Rocket System (GMLRS). Funding from both Projects 093: Multi-Launch Rocket System (MLRS) and DX8: HIMARS Product Improvement Program contributes to common efforts between both launcher platforms such as Assured Positioning, Navigation and Timing (APNT) integration and rocket launcher software development effort by Combat Capabilities Development Command Aviation and Missile Center (CCDC AvMC). Supports the Army's goal to develop common solutions applicable to both MLRS and HIMARS launchers.

This funding line is a key enabler of the Army Modernization Priorities in support of the Multiple Launch Rocket System (MLRS) and the High Mobility Artillery Rocket System (HIMARS) programs. The MLRS and HIMARS programs are components of an integrated fires development effort that includes survivability, resiliency, and effectiveness improvements against advanced threats from near-peer adversaries. These efforts include integration with an evolving common fires mission command, common development tools and processes, and annual test and evaluation to provide data to support program assessments and progress toward closure of performance gaps.

093: Multi-Launch Rocket System (MLRS). The M270A1 Multiple Launch Rocket System (MLRS) launcher is a full-spectrum, combat-proven, all-weather, 24/7 lethal and responsive, precision strike weapon system. MLRS provides critical missile precision strike, operational shaping fires, counterfire, and close support destructive and suppressive fires. MLRS is a tracked, indirect fire, rocket/missile launcher capable of firing two pods of precision rockets/missiles from the current Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM) to include the Guided Multiple Launch Rocket System-Unitary (GMLRS-U), GMLRS-Alternative Warhead, the Army Tactical Missile System (ATACMS) and future MFOM to include the Extended Range (ER) GMLRS, and the Precision Strike Missile (PrSM). Funds software development, training updates, Assured Positioning, Navigation and Timing (APNT) technology implementation, integration of satellite communications, and nonrecurring engineering for the MLRS launcher. Funds development related to maintaining capability associated with the current and evolving threat. Funds non-recurring engineering for system hardware and software modernization to the MLRS chassis, Launcher Loader Module, and Fire Control System.

DX8: HIMARS Product Improvement Program. The M142 High Mobility Artillery Rocket System (HIMARS) launcher is a full-spectrum, combat-proven, all-weather, 24/7 lethal and responsive, precision strike weapon system. HIMARS provides critical missile precision strike, operational shaping fires, counterfire, and close support

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0603778A / <i>MLRS Product Improvement Program</i> |
|---|---|

destructive and suppressive fires. HIMARS is a C-130 or C-17 transportable, wheeled, indirect fire, rocket/missile launcher capable of firing one pod of precision rockets/missiles from the current and emerging Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM), to include the Guided Multiple Launch Rocket System-Unitary (GMLRS-U), GMLRS- Alternative Warhead, the Army Tactical Missile System (ATACMS) and future MFOM to include the Extended Range (ER) GMLRS, and the Precision Strike Missile (PrSM). Funds software development, training updates, Assured Positioning, Navigation and Timing (APNT) technology implementation, integration of satellite communications, and nonrecurring engineering for the HIMARS launcher. Funds development related to maintaining capability associated with the current and evolving threat.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 12.314 | 18.463 | 14.770 | - | 14.770 |
| Current President's Budget | 11.865 | 18.463 | 14.465 | - | 14.465 |
| Total Adjustments | -0.449 | 0.000 | -0.305 | - | -0.305 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.449 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -0.305 | - | -0.305 |

Change Summary Explanation

Decreased funding to support higher Army priorities.

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program | | | | Project (Number/Name) 093 / Multi-Launch Rocket System (MLRS) | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| 093: Multi-Launch Rocket System (MLRS) | - | 4.792 | 10.176 | 10.233 | - | 10.233 | 9.927 | 5.101 | 5.422 | 5.482 | 0.000 | 51.133 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

093: Multi-Launch Rocket System. The M270A1 Multiple Launch Rocket System (MLRS) launcher is a full-spectrum, combat-proven, all-weather, 24/7 lethal and responsive, precision strike weapon system. MLRS provides critical missile precision strike, operational shaping fires, counterfire, and close support destructive and suppressive fires. MLRS is a tracked, indirect fire, rocket/missile launcher capable of firing two pods of precision rockets/missiles from the current Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM) to include the Guided Multiple Launch Rocket System-Unitary (GMLRS-U), GMLRS-Alternative Warhead, the Army Tactical Missile System (ATACMS) and future MFOM to include the Extended Range (ER) GMLRS, and the Precision Strike Missile (PrSM). Funds software development, training updates, Assured Positioning, Navigation and Timing (APNT) technology implementation, integration of satellite communications, and nonrecurring engineering for the MLRS launcher. Funds development related to maintaining capability associated with the current and evolving threat. Funds non-recurring engineering for system hardware and software modernization to the MLRS chassis, Launcher Loader Module, and Fire Control System. Funding from both 093: Multi-Launch Rocket System and DX8: HIMARS Product Improvement Program contributes to common efforts between both launcher platforms such as Assured Positioning, Navigation and Timing (APNT) integration and rocket launcher software development effort by Combat Capabilities Development Command Aviation and Missile Center (CCDC AvMC). Supports the Army's goal to common solutions applicable to both MLRS and HIMARS launchers.

FY 2024 Base funding in the amount of \$10.233 million for 093: Multi-Launch Rocket System continues tactical launcher software development, qualification, and materiel release to support the Fire Control System (FCS) electronic obsolescence mitigation hardware upgrade required to operate a MLRS launcher. The tactical software is a critical developmental item required to field additional launchers, maintain backward compatibility for current fleet sustainment, and is the first release of government developed software common to both the MLRS and HIMARS launcher. Continues integration of Assured Positioning, Navigation and Timing (APNT) capabilities, and integration of satellite communications, allowing MLRS to continue to effectively operate in near-peer and peer-threat environments.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: MLRS Product Improvement Program | 4.792 | 9.805 | 10.233 |
| Description: The M270A1 MLRS Product Improvement Program provides the preservation of platform viability and readiness to accept technology insertion as capability enhancements are developed and to mitigate electronic obsolescence. Support efforts include: obsolescence mitigation and enhancements for the M993A1 carrier, Fire Control System, Launcher Loader Module and Enhanced Command and Control; development and updating the Fire Control System software to keep pace with changes to the munitions; and performing Command, Control, Communications, Computers and Intelligence (C4I)/interoperability and Information Assurance compliance certification and network interoperability testing. Perform technical assessments and concept studies for | | | |

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|---|--|---|----------------|----------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program | Project (Number/Name) 093 / Multi-Launch Rocket System (MLRS) | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| the following: electronic obsolescence mitigation, Assured Positioning, Navigation and Timing (APNT), crew protection, automotive and hardware/software enhancements, improving operational timelines and risk reduction. | | | | |
| <p>FY 2023 Plans: Continue updates to currently fielded tactical launcher software. Continue tactical launcher software development to incorporate updates post Functional Qualification and Post System Integration Qualification to support the Fire Control System (FCS) obsolescence mitigation hardware upgrade required to operate a MLRS launcher. Integrate and test the improved Assured Positioning, Navigation and Timing (APNT) and satellite communications capabilities. Support development, integration, and testing of Multiple Launch Rocket System solutions, to support biennial Survivability Resiliency/Cyber-Electromagnetic (SUREX) activities exercises and the Positioning, Navigation and Training (PNTX) exercise that support an annual Program Executive Office Missiles and Space (PEO MS)-led Multi-Domain Operations test/demonstration event.</p> <p>FY 2024 Plans: Continue updates to currently fielded tactical launcher software. Continue tactical launcher software development to incorporate updates post Functional Qualification Test (FQT) and Post System Integration Test (SIT) qualification to support the Fire Control System (FCS). Integrate and test the improved Assured Positioning, Navigation and Timing (APNT) capabilities and satellite communications. Development, integration, and testing of Multiple Launch Rocket System solutions, including test planning to support an annual PEO MS-led Multi-Domain Operations test/demonstration event. This event also includes biennial Survivability Resiliency/Cyber-Electromagnetic activities.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase supports planned lifecycle of the effort.</p> | | | | |
| <p>Title: SBIR/STTR Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC 638.</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC 638.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638.</p> | | - | 0.371 | - |
| Accomplishments/Planned Programs Subtotals | | 4.792 | 10.176 | 10.233 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program | Project (Number/Name) 093 / Multi-Launch Rocket System (MLRS) |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> | | | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> | |
|---------------------|----------------|----------------|----------------|------------|--------------|----------------|----------------|----------------|----------------|-----------------|-------------------|
| | | | <u>Base</u> | <u>OCO</u> | <u>Total</u> | | | | | <u>Complete</u> | <u>Total Cost</u> |
| • C67500: MLRS Mods | 273.856 | 218.359 | 168.198 | - | 168.198 | 185.479 | 166.770 | 167.021 | 167.193 | Continuing | Continuing |

Remarks

C67500 is Budget Line Item Number (BLIN) 24 funded in the Missiles Procurement Army appropriation.

D. Acquisition Strategy

The M270A1 MLRS Product Improvement Program performs development efforts required to address emerging requirements. Emerging requirements include, but are not limited to, updates to address emerging threats to the launcher organic version 8.x software, reacting to system changes driven by policy and emerging requirements, and maintaining architectural compatibility with other Army ground-based systems reducing sustainability costs. Update software and hardware for communications and munitions to maintain compatibility and operational viability against near-peer adversaries. The MLRS program is a component of an integrated fires development effort that includes survivability, resiliency, and effectiveness improvements against advanced threats from near-peer adversaries. This effort includes integration with an evolving common fires mission command, common development tools and processes, and annual test and evaluation to provide data to support program assessments and progress toward closure of performance gaps.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program | Project (Number/Name) 093 / Multi-Launch Rocket System (MLRS) |
|--|--|---|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| SBIR/STTR Transfer | Various | Various : Various | - | - | | 0.371 | | - | | - | | - | 0.000 | 0.371 | - |
| Subtotal | | | - | - | | 0.371 | | - | | - | | - | 0.000 | 0.371 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|----------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Organic Software Development | MIPR | CCDC AvMC : Redstone Arsenal, AL | 19.338 | 2.268 | Dec 2021 | 4.013 | Nov 2022 | 4.653 | Nov 2023 | - | | 4.653 | Continuing | Continuing | Continuing |
| Assured Positioning, Navigation and Timing (APNT) Integration | WR | LMMFC : Grand Prairie, TX | - | 1.907 | Nov 2021 | 5.395 | Nov 2022 | 5.175 | Nov 2023 | - | | 5.175 | Continuing | Continuing | Continuing |
| Subtotal | | | 19.338 | 4.175 | | 9.408 | | 9.828 | | - | | 9.828 | Continuing | Continuing | N/A |

Remarks
Organic (government developed, maintained, and owned) software development includes additional research and development related to Fire Control System obsolescence.

Assured Positioning, Navigation and Timing (APNT) includes activities that modernized hardware which facilitates compliance with statutory requirements (M-Code) and improve system robustness against the GPS Jamming Threat (Anti-Jam), Anti-Spoofing capabilities, and integration of satellite communications.

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Test Support | MIPR | Ft Hood, TX, ATEC, APG, MD, WSMR, RTC, : RSA: Various | 1.174 | 0.617 | Nov 2021 | 0.397 | Nov 2022 | 0.405 | Nov 2023 | - | | 0.405 | Continuing | Continuing | Continuing |
| Subtotal | | | 1.174 | 0.617 | | 0.397 | | 0.405 | | - | | 0.405 | Continuing | Continuing | N/A |

Remarks
Test support includes software qualification for the Fire Control System as well as the qualification and testing of the Assured Positioning, Navigation and Timing (APNT) solution.

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|---|--------------------|----------------|---|---------------------|--------------------|----------------------|--|-------------------|---------------------------------|--|--|
| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | Date: March 2023 | | | | |
| Appropriation/Budget Activity 2040 / 7 | | | R-1 Program Element (Number/Name) PE 0603778A / <i>MLRS Product Improvement Program</i> | | | | Project (Number/Name) 093 / <i>Multi-Launch Rocket System (MLRS)</i> | | | | |
| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract | | |
| Project Cost Totals | 20.512 | 4.792 | 10.176 | 10.233 | - | 10.233 | Continuing | Continuing | N/A | | |

Remarks
 Acronyms:
 APNT: Assured Positioning, Navigation and Timing
 AvMC: Aviation and Missile Center;
 CCDC: Combat Capabilities Development Command;
 STORM - Strategic and Operational Rocket and Missile Systems;
 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
 LMMFC - Lockheed Martin Missiles & Fire Control

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program | Project (Number/Name) 093 / Multi-Launch Rocket System (MLRS) |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------|------------|---|---|---------|---|---|---|------------|---|---|---|---------|---|---|---|------------|---|---|---|---------|---|---|---|------------|------------|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| Software Development | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Functional Configuration Audit | ▲ 1 | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GPS Anti-Jam/Anti-Spoof Design & Development | [Redacted] | | | | | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| APNT Integration | [Redacted] | | | | | | | | [Redacted] | | | | | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| APNT Test | [Redacted] | | | | | | | | [Redacted] | | | | | | | | [Redacted] | | | | | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| APNT Production Decision | [Redacted] | | | | | | | | [Redacted] | | | | | | | | [Redacted] | | | | | | | | ▲ 2 | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0603778A / <i>MLRS Product Improvement Program</i> | Project (Number/Name) 093 / <i>Multi-Launch Rocket System (MLRS)</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Software Development | 1 | 2018 | 4 | 2028 |
| Functional Configuration Audit | 2 | 2022 | 2 | 2022 |
| GPS Anti-Jam/Anti-Spoof Design & Development | 1 | 2021 | 2 | 2023 |
| APNT Integration | 3 | 2023 | 2 | 2025 |
| APNT Test | 2 | 2024 | 4 | 2025 |
| APNT Production Decision | 1 | 2026 | 1 | 2026 |

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program | | | | Project (Number/Name) DX8 / HIMARS Product Improvement Program | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| DX8: HIMARS Product Improvement Program | - | 7.073 | 8.287 | 4.232 | - | 4.232 | 4.232 | 4.237 | 4.283 | 4.331 | 0.000 | 36.675 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

DX8: HIMARS Product Improvement Program. The M142 High Mobility Artillery Rocket System (HIMARS) launcher is a full-spectrum, combat-proven, all-weather, 24/7 lethal and responsive, precision strike weapon system. HIMARS provides critical missile precision strike, operational shaping fires, counterfire, and close support destructive and suppressive fires. HIMARS is a C-130 or C-17 transportable, wheeled, indirect fire, rocket/missile launcher capable of firing one pod of precision rockets/missiles from the current and emerging Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM), to include the Guided Multiple Launch Rocket System-Unitary (GMLRS-U), GMLRS- Alternative Warhead, the Army Tactical Missile System (ATACMS) and future MFOM to include the Extended Range (ER) GMLRS, and the Precision Strike Missile (PrSM). Funds software development, training updates, Assured Positioning, Navigation and Timing (APNT) technology implementation, integration of satellite communications, and nonrecurring engineering for the HIMARS launcher. Funds development related to maintaining capability associated with the current and evolving threat. Funding from both 093: Multi-Launch Rocket System and DX8: HIMARS Product Improvement Program contributes to common efforts between both launcher platforms such as Assured Positioning, Navigation and Timing (APNT) integration and rocket launcher software development effort by Combat Capabilities Development Command Aviation and Missile Center (CCDC AvMC). Supports the Army's goal to common solutions applicable to both MLRS and HIMARS launchers.

FY 2024 Base funding in the amount of \$4.232 million for DX8: HIMARS Product Improvement Program supports tactical launcher software development and qualification to support the Fire Control System (FCS) electronic obsolescence mitigation hardware upgrade required to operate a HIMARS launcher. The tactical software is a critical developmental item required to field additional launchers, maintain backward compatibility for current fleet sustainment, and is the first release of government developed software common to both the MLRS and HIMARS launcher.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: MLRS Production Improvement Program (PIP)-HIMARS PIP | 7.073 | 7.985 | 4.232 |
| Description: The HIMARS Product Improvement Program provides the preservation of platform viability and readiness to accept technology insertion as capability enhancements are developed, technology is inserted in order to mitigate obsolescence. Support efforts include: obsolescence mitigation and enhancements for the Family of Medium Tactical Vehicles (FMTV) Carrier, Fire Control System, Launcher Loader Module and Enhanced Command and Control; development and updating the Fire Control System software to keep pace with changes to the munitions; and performing Command, Control, Communications, Computers and Intelligence (C4I)/interoperability and Information Assurance compliance certification and network interoperability testing. Perform technical assessments and concept studies for the following: electronic obsolescence mitigation and redesign to keep | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program | Project (Number/Name) DX8 / HIMARS Product Improvement Program |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>pace with the evolving threat, Assured Positioning Navigation and Timing (APNT), crew protection, automotive and hardware/software enhancements, improving operational timelines, leader-follower technology and risk reduction.</p> <p>FY 2023 Plans: Continues tactical launcher software development, risk reduction, and qualification to support the Fire Control System (FCS) electronic obsolescence mitigation hardware upgrade required to operate a HIMARS launcher. Integrate and test the improved Assured Positioning, Navigation and Timing (APNT) capabilities and satellite communications. Support integration and testing of the High Mobility Artillery Rocket System solutions, to support biennial Survivability Resiliency/Cyber-Electromagnetic (SUREX) activities and the Positioning, Navigation and Training (PNTX) exercise that will support the annual PEO MS-led Multi-Domain Operations test/demonstration event.</p> <p>FY 2024 Plans: Continues tactical launcher software development, risk reduction, and qualification to support the Fire Control System (FCS) electronic obsolescence mitigation hardware upgrade required to operate a HIMARS launcher.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decreased funding from FY 2023 to FY 2024 due to the reduction of APNT integration and software development efforts.</p> | | | |
| <p>Title: SBIR/STTR Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC 638.</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC 638.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638.</p> | - | 0.302 | - |
| Accomplishments/Planned Programs Subtotals | 7.073 | 8.287 | 4.232 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • C67501: HIMARS Modifications | 7.192 | 20.468 | 76.266 | - | 76.266 | 49.485 | 54.065 | 54.107 | 54.163 | Continuing | Continuing |
| • C02901: High Mobility Artillery Rocket System (HIMARS) | 599.849 | 155.705 | 179.230 | - | 179.230 | 170.060 | 131.799 | 131.976 | 132.112 | 0.000 | 1,500.731 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0603778A / <i>MLRS Product Improvement Program</i> | Project (Number/Name) DX8 / <i>HIMARS Product Improvement Program</i> |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|

Remarks
C67501 (Budget Line Item Number 25) and C02091 (Budget Line Item Number 17) are funded in the Missiles Procurement Army appropriation.

D. Acquisition Strategy

The M142 HIMARS Product Improvement Program performs development efforts required to address emerging requirements. Emerging requirements include, but are not limited to, updates to address emerging threats of the launcher organic version 8.x software, reacting to system changes driven by policy and emerging requirements, and maintaining architectural compatibility with other Army ground-based systems reducing sustainability costs. Update software and hardware for communications and munitions to maintain compatibility and operational viability against near-peer adversaries. The HIMARS program is a component of an integrated fires development effort that includes survivability, resiliency, and effectiveness improvements against advanced threats from near-peer adversaries. This effort includes integration with an evolving common fires mission command, common development tools and processes, and annual test and evaluation to provide data to support program assessments and progress toward closure of performance gaps.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program | Project (Number/Name) DX8 / HIMARS Product Improvement Program |
|--|--|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| SBIR/STTR Transfer | Various | Various : Various | - | - | | 0.302 | | - | | - | | - | 0.000 | 0.302 | - |
| Subtotal | | | - | - | | 0.302 | | - | | - | | - | 0.000 | 0.302 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|----------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Organic Software Development | MIPR | CCDC AvMC : Redstone Arsenal, AL | 25.379 | 4.549 | Apr 2022 | 3.877 | Apr 2023 | 2.320 | Apr 2024 | - | | 2.320 | Continuing | Continuing | Continuing |
| APNT Integration | WR | LMMFC : Grand Prairie, TX | - | 1.907 | Nov 2021 | 3.711 | Nov 2022 | 1.507 | Nov 2023 | - | | 1.507 | Continuing | Continuing | Continuing |
| Subtotal | | | 25.379 | 6.456 | | 7.588 | | 3.827 | | - | | 3.827 | Continuing | Continuing | N/A |

Remarks
Organic (government developed, maintained, and owned) software development includes additional research and development related to Fire Control System electronic obsolescence.

Assured Positioning, Navigation and Timing (APNT) activities includes integration of Global Positioning System (GPS) Anti-Jam, Anti-Spoofing capabilities, and integration of satellite communications.

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Test Support | MIPR | Ft Hood, TX, ATEC, APG, MD, WSMR, RTC, RSA : Various | 4.686 | 0.617 | Nov 2021 | 0.397 | Nov 2022 | 0.405 | Nov 2023 | - | | 0.405 | Continuing | Continuing | Continuing |
| Subtotal | | | 4.686 | 0.617 | | 0.397 | | 0.405 | | - | | 0.405 | Continuing | Continuing | N/A |

Remarks
Test support includes software qualification for the Fire Control System as well as the qualification and testing of the Assured Positioning, Navigation and Timing (APNT) solution.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | Date: March 2023 | | | | |
| Appropriation/Budget Activity 2040 / 7 | | | R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program | | | | Project (Number/Name) DX8 / HIMARS Product Improvement Program | | | | |
| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract | | |
| Project Cost Totals | 30.065 | 7.073 | 8.287 | 4.232 | - | 4.232 | Continuing | Continuing | N/A | | |

Remarks
 APG MD - Aberdeen Proving Ground, Maryland
 APNT - Assured Positioning, Navigation and Timing
 ATEC - US Army Test and Evaluation Command
 AvMC - Aviation and Missile Center
 CCDC - Combat Capabilities Development Command
 RTC RSA - Redstone Test Center, Redstone Arsenal, Alabama
 STORM - Strategic and Operational Rockets and Missiles
 WSMR - White Sands Missile Range

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0603778A / MLRS Product Improvement Program | Project (Number/Name) DX8 / HIMARS Product Improvement Program |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---------------------------|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Software Development | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| APNT Design & Development | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| APNT Integration | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| APNT Test | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| APNT Production Decision | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |

1
APNT Production Decision

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0603778A / <i>MLRS Product Improvement Program</i> | Project (Number/Name) DX8 / <i>HIMARS Product Improvement Program</i> |

Schedule Details

| Events | Start | | End | |
|---------------------------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Software Development | 1 | 2019 | 4 | 2028 |
| APNT Design & Development | 1 | 2021 | 2 | 2023 |
| APNT Integration | 1 | 2022 | 2 | 2025 |
| APNT Test | 3 | 2022 | 4 | 2025 |
| APNT Production Decision | 1 | 2026 | 1 | 2026 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|--|--|
| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0605024A / Anti-Tamper Technology Support |
|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-------------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 8.544 | 9.284 | 7.472 | - | 7.472 | 7.474 | 7.482 | 7.562 | 7.644 | Continuing | Continuing |
| FB1: Anti-Tamper Technology Support | - | 8.544 | 9.284 | 7.472 | - | 7.472 | 7.474 | 7.482 | 7.562 | 7.644 | Continuing | Continuing |

A. Mission Description and Budget Item Justification

Anti-Tamper (AT) Technology Support. The Protective Technologies (PT) organization is the Army's Technical Center for the DoD AT program, which is focused on preventing exploitation reverse engineering (RE) of U.S. systems lost or captured on the battlefield or sold via Foreign Military Sales (FMS) or Direct Commercial Sales (DCS). In support of this mission, PT's classified efforts are focused on AT Validation and Verification (V&V) activities with Army programs, AT/RE Lab facilities and equipment and AT/RE Lab assessments.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 8.868 | 9.284 | 7.439 | - | 7.439 |
| Current President's Budget | 8.544 | 9.284 | 7.472 | - | 7.472 |
| Total Adjustments | -0.324 | 0.000 | 0.033 | - | 0.033 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.324 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 0.033 | - | 0.033 |

Change Summary Explanation

Increased funding due to revised economic assumptions.

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0605024A / <i>Anti-Tamper Technology Support</i> | | | | Project (Number/Name) FB1 / <i>Anti-Tamper Technology Support</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| FB1: <i>Anti-Tamper Technology Support</i> | - | 8.544 | 9.284 | 7.472 | - | 7.472 | 7.474 | 7.482 | 7.562 | 7.644 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Anti-Tamper (AT) Technology Support. The Protective Technologies (PT) organization is the Army's Technical Center for the DoD AT program, which is focused on preventing exploitation/reverse engineering (RE) of U.S. systems lost or captured on the battlefield or sold via Foreign Military Sales (FMS) or Direct Commercial Sales (DCS). In support of this mission, PT's classified efforts are focused on AT Validation and Verification (V&V) activities with Army programs, AT/RE Lab facilities and equipment and AT/RE Lab assessments

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Anti-Tamper (AT) Technology Support | 8.544 | 9.028 | 7.472 |
| Description: AT is a DoD program that encompasses the systems engineering activities intended to prevent and/or delay exploitation of critical technologies in U.S. weapon systems. These activities involve the entire life-cycle of systems acquisition, including research, development, implementation, and testing of AT measures. | | | |
| FY 2023 Plans: Continue to build and maintain the PT core team of SMEs available for this ongoing Army-level mission to support the development and fielding of new and upgraded Army programs through the technical evaluation of their AT architectures. In support of that primary mission, PT must and will continue to build and maintain state-of-the-art RE capabilities to facilitate technical assessments to evaluate the vulnerabilities of micro-electronic components used in the electronic designs of Army weapons systems with CPI that requires protection. | | | |
| FY 2024 Plans: Will continue to build and maintain the Protective Technologies (PT) core team of SMEs available for this ongoing mission to support the development and fielding of Army programs through the technical evaluation of their AT architectures. In support of that primary mission, PT must and will continue to build and maintain state-of-the-art RE capabilities to facilitate technical assessments to evaluate the vulnerabilities of micro-electronic components used in the electronic designs of Army weapons systems with CPI that requires protection. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Funding changes reflect planned lifecycle of this effort. | | | |
| Title: SBIR/STTR Transfer | - | 0.256 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0605024A / <i>Anti-Tamper Technology Support</i> | Project (Number/Name) FB1 / <i>Anti-Tamper Technology Support</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Description: Funding transferred in accordance with Title 15 USC §638 | | | |
| FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638 | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638 | | | |
| Accomplishments/Planned Programs Subtotals | 8.544 | 9.284 | 7.472 |

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

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | | |
|--|------------------------|--|-------------|--|------------|---------|------------|--------------------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|--|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | | |
| 2040 / 7 | | | | PE 0605024A / Anti-Tamper Technology Support | | | | FB1 / Anti-Tamper Technology Support | | | | | | | | |
| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| SBIR/STTR Transfer | TBD | Various : Various | - | - | | 0.256 | Feb 2023 | - | | - | | - | 0.000 | 0.256 | - | |
| Subtotal | | | - | - | | 0.256 | | - | | - | | - | 0.000 | 0.256 | N/A | |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| AT V&V Activities | Various | Redstone Arsenal & Prime Contract locations : Redstone Arsenal | 8.008 | 3.233 | Oct 2021 | 3.295 | Oct 2022 | 2.716 | Oct 2023 | - | | 2.716 | 0.000 | 17.252 | - | |
| Subtotal | | | 8.008 | 3.233 | | 3.295 | | 2.716 | | - | | 2.716 | 0.000 | 17.252 | N/A | |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| AT/RE Lab Facilities & Equipment | Various | Redstone Arsenal, AL : Redstone Arsenal, AL | 8.186 | 3.359 | Oct 2021 | 3.425 | Oct 2022 | 2.822 | Oct 2023 | - | | 2.822 | 0.000 | 17.792 | - | |
| Subtotal | | | 8.186 | 3.359 | | 3.425 | | 2.822 | | - | | 2.822 | 0.000 | 17.792 | N/A | |
| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| AT/RE Laboratory Assessments | Various | Redstone Arsenal, AL : Redstone Arsenal, AL | 4.541 | 1.952 | Oct 2021 | 2.308 | Oct 2022 | 1.934 | Oct 2023 | - | | 1.934 | 0.000 | 10.735 | - | |
| Subtotal | | | 4.541 | 1.952 | | 2.308 | | 1.934 | | - | | 1.934 | 0.000 | 10.735 | N/A | |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | Date: March 2023 | | | | | |
| Appropriation/Budget Activity 2040 / 7 | | | R-1 Program Element (Number/Name) PE 0605024A / <i>Anti-Tamper Technology Support</i> | | | | Project (Number/Name) FB1 / <i>Anti-Tamper Technology Support</i> | | | | | | |
| | Prior Years | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
| Project Cost Totals | 20.735 | 8.544 | | 9.284 | | 7.472 | | - | | 7.472 | 0.000 | 46.035 | N/A |

Remarks

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0605024A / <i>Anti-Tamper Technology Support</i> | Project (Number/Name) FB1 / <i>Anti-Tamper Technology Support</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|------------------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| AT V&V Activities | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AT/RE Lab Facilities and Equipment | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AT/RE Laboratory Assessments | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0605024A / <i>Anti-Tamper Technology Support</i> | Project (Number/Name) FB1 / <i>Anti-Tamper Technology Support</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| AT V&V Activities | 1 | 2017 | 4 | 2028 |
| AT/RE Lab Facilities and Equipment | 1 | 2017 | 4 | 2028 |
| AT/RE Laboratory Assessments | 1 | 2017 | 4 | 2028 |
| AT Congressional Add - New Novel Tech Solutions | 2 | 2019 | 4 | 2019 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> |
|---|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 39.994 | 57.174 | 8.425 | - | 8.425 | 5.843 | 5.936 | 6.056 | 6.178 | Continuing | Continuing |
| CP2: <i>Precision Fire Technology Improvements</i> | - | 9.634 | - | 3.451 | - | 3.451 | 3.542 | 3.633 | 3.728 | 3.825 | 0.000 | 27.813 |
| ER2: <i>Close Combat Technology</i> | - | 3.341 | 5.307 | 0.687 | - | 0.687 | - | - | - | - | Continuing | Continuing |
| ER5: <i>Indirect Fire and Fuze Technology</i> | - | 2.576 | 2.454 | 2.225 | - | 2.225 | 2.301 | 2.303 | 2.328 | 2.353 | Continuing | Continuing |
| ER6: <i>Direct Fire Technology</i> | - | 24.443 | 49.413 | 2.062 | - | 2.062 | - | - | - | - | Continuing | Continuing |

A. Mission Description and Budget Item Justification

Project CP2 Precision Fire Technology Improvements supports required Precision Guided Munitions (PGMs), and Precision Fuze and Fuze Setter assessment and improvement initiatives to support increased rates of fire for items that have been fielded or in full rate production, such as the M1155 Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS), Excalibur and Precision Guidance Kit (PGK). Efforts will identify, characterize, study, analyze, test, and develop PGM and Fuze technologies to increase range, lethality, effectiveness, survivability and accuracy. Fiscal Year (FY) 2024 funding will support software development, integration activities and continued monitoring of the upgrade strategies and requirements of interfacing Precision Guided Munition Programs in support of Artillery ammunition and platform modernization. FY 2024 funding will also support fuze setting integration activities required for compatibility with the Extended Range Cannon Artillery (ERCA) weapon system.

Project ER2 Close Combat Technology includes development efforts to upgrade Close Combat technologies, energetics, and munitions, such as counter explosives, grenades, demolitions, shoulder launched munitions, pyrotechnic simulators, countermeasure flares, non-lethal ammunition/systems, and networked munitions and mines, that have been fielded or have received approval for full rate production. FY 2023 funding will allow the project to identify, characterize, study, analyze, test and develop technologies to resolve close combat munition reliability, safety, environmental, storage, standardization, obsolescence and manufacturing/producibility issues.

Project ER5 The Indirect Fire and Fuze Technology Project includes product improvement development efforts to upgrade indirect fire weapon systems and munitions that are fielded and/or in production. Initiatives include improved target engagement, increased reliability, availability, maintainability, and safety, standardization and interoperability with weapons and munitions of Allied Nations, defense exportability features, reduction of failure mechanisms, and supply chain risk through the introduction of new and alternative technology and materiel solutions, improvement of manufacturing methods and their associated production and life cycle support processes, new capabilities in response to the evolving and emerging threats and countermeasures, and reduction/elimination of potential environmental and health risks associated with these products. Fiscal Year (FY) 2024 funding will support Fuze Technology Integration (FTI) efforts to complete the M783 mortar fuze evaluation, design improvement and testing to preclude early fuze functioning; expand and refine the fuze critical components database to identify and mitigate obsolescence; continue to mature extended duration artillery fuze power sources; develop and evaluate M734A1 mortar fuze custom application specific integrated circuit (ASIC) signal processors and accelerometers; integrate electronic and energetic technologies into the M213 hand grenade fuze to increase fuze and explosive safety; evaluate

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> |
|---|---|

miniature reserve cell batteries for use in 30mm to 40mm medium caliber fuzes; and complete improvements to proximity fuze sensor hardware in the loop testing infrastructure.

Project ER6: The Direct Fire Technology funding will be used to support direct fire ammunition from small caliber ammunition, medium caliber ammunition and large caliber ammunition enhancements to lethality, effectiveness, survivability, accuracy and general product improvements. Fiscal Year (FY) 2024 funding supports a number of small caliber ammunition projects including improvements to training ammunition; improvements to make small caliber primers more environmentally friendly; optimization of handgun ammunition; exploring precision sniper improvements and continuing the effort to reduce Soldier load by developing lightweight ammunition. Improvements to medium caliber ammunition include lethality and safety enhancements. Improvements to 105mm and 120mm tank ammunition include examination and implementation of performance enhancement and improvements to tracer, combustible cartridge case and 105mm Advanced Multipurpose (AMP).

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 35.828 | 11.674 | 4.952 | - | 4.952 |
| Current President's Budget | 39.994 | 57.174 | 8.425 | - | 8.425 |
| Total Adjustments | 4.166 | 45.500 | 3.473 | - | 3.473 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | 43.000 | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | 4.166 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 3.473 | - | 3.473 |
| • Ukraine Supplemental | - | 2.500 | - | - | - |

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: ER6: *Direct Fire Technology*

Congressional Add: *Tungsten Manufacturing Affordability Initiative for Armaments*

Congressional Add: *Printed Electronics (PEEMS)*

Congressional Add: *Lightweight Case for Small Caliber Ammunition (LSCA)*

Congressional Add: *Smart Manufacturing for Armaments*

Congressional Add: *Additive Manufacturing for Weapons and Armaments Components*

Congressional Add: *Refractory Metal Alloys for Hypersonics*

Congressional Add: *Proof of Concept Military-Grade Antimony Trisulfide*

| | FY 2022 | FY 2023 |
|--|----------------|----------------|
| | 8.000 | - |
| | 5.000 | - |
| | 5.000 | - |
| | - | 5.000 |
| | - | 10.000 |
| | - | 10.000 |
| | - | 10.000 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

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|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> |
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Congressional Add: *Next Generation Carbide Ammunition*

Congressional Add Subtotals for Project: ER6

Congressional Add Totals for all Projects

| | FY 2022 | FY 2023 |
|--|---------|---------|
| | - | 8.000 |
| Congressional Add Subtotals for Project: ER6 | 18.000 | 43.000 |
| Congressional Add Totals for all Projects | 18.000 | 43.000 |

Change Summary Explanation

The change in program funding is part of the Precision Fire Technology Improvements. Increase in funding in FY2024 is due to the additional Fuze Setter Modernization efforts that have been identified for execution in support of the Army's modernization priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) CP2 / Precision Fire Technology Improvements |
|--|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| CP2: Precision Fire Technology Improvements | - | 9.634 | - | 3.451 | - | 3.451 | 3.542 | 3.633 | 3.728 | 3.825 | 0.000 | 27.813 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

Note
Fiscal Year (FY) 2023 was a skip year for project CP2. Funding resumes in FY 2024.

A. Mission Description and Budget Item Justification

This Project supports required Precision Guided Munitions (PGMs), and Precision Fuze and Fuze Setter assessment and improvement initiatives to support increased rates of fire for items that have been fielded or in full rate production, such as the M1155 Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS), Excalibur and Precision Guidance Kit (PGK). Efforts will identify, characterize, study, analyze, test, and develop PGM and Fuze technologies to increase range, lethality, effectiveness, survivability and accuracy. Fiscal Year (FY) 2024 funding will support software development, integration activities and continued monitoring of the upgrade strategies and requirements of interfacing Precision Guided Munition Programs in support of Artillery ammunition and platform modernization. FY 2024 funding will also support fuze setting integration activities required for compatibility with the Extended Range Cannon Artillery (ERCA) weapon system.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| <p>Title: Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS) Modernization</p> <p>Description: The effort supports fuze setting system requirements based on legacy and developmental platforms and munitions for 155mm Artillery systems. Efforts support development of comprehensive technology plan for the Extended Range Cannon Artillery (ERCA) weapon system as well as 155mm Artillery modernization efforts.</p> <p>FY 2024 Plans: FY 2024 funding will support requirements management, software development and integration activities in support of 155mm Artillery ammunition and platform modernization. FY 2024 funding will also support fuze setting integration activities required for compatibility with the Extended Range Cannon Artillery (ERCA).</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2023 was a skip year. Increase in funding in FY 2024 to support required Fuze Setter Modernization efforts for current and future Precision Guided Munitions (PGMs) and Fuzes.</p> | 3.299 | - | 3.451 |
| <p>Title: Excalibur lb Modernization</p> <p>Description: This effort will complete a series of Excalibur lb safety and reliability test activities to ensure survivability at higher pressures in the ERCA system.</p> | 6.335 | - | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) CP2 / <i>Precision Fire Technology Improvements</i> |

| | | | |
|---|----------------|----------------|----------------|
| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
| Accomplishments/Planned Programs Subtotals | 9.634 | - | 3.451 |

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

N/A

Remarks

D. Acquisition Strategy

The EPIAFS Modernization effort is utilizing US Government labor and development capabilities to accomplish trade studies and Other Transaction Agreement (OTA) contracts for development of promising fuze setting concepts. Upon completion, efforts will transition to production as Engineering Change Proposals (ECPs) to be integrated into existing Federal Acquisition Regulation (FAR) production contracts as they become available.

The Excalibur Ib Modernization effort is utilizing existing Engineering Services contract with Raytheon Missiles and Defense as well as contracts to support modernization activities. Upon successful completion, improvements will be integrated via ECP in the Excalibur Ib production contract.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) CP2 I Precision Fire Technology Improvements |
|--|--|--|

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Excalibur Ib Modernization Component Hardware | Various | To Be Determined : TBD | - | 0.234 | Sep 2022 | - | | - | | - | | - | 0.000 | 0.234 | - |
| Excalibur Ib Modernization Hardware | SS/CPFF | Raytheon Missiles and Defense (RMD) : Tuscon, AZ | - | 4.115 | Sep 2022 | - | | - | | - | | - | 0.000 | 4.115 | - |
| EPIAFS Modernization Development and Hardware | Various | To Be Determined : TBD | - | 0.932 | Jul 2022 | - | | 1.259 | Jun 2024 | - | | 1.259 | 0.000 | 2.191 | - |
| Subtotal | | | - | 5.281 | | - | | 1.259 | | - | | 1.259 | 0.000 | 6.540 | N/A |

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Excalibur Ib Modernization Engineering Support | MIPR | Combat Capabilities Development Command Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ | - | 0.453 | Apr 2022 | - | | - | | - | | - | 0.000 | 0.453 | - |
| EPIAFS Modernization Engineering Support | MIPR | Combat Capabilities Development Command Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ | - | 2.007 | Apr 2022 | - | | 1.792 | Nov 2023 | - | | 1.792 | 0.000 | 3.799 | - |
| EPIAFS Modernization Platform/Fire Control Integration Support | MIPR | Combat Capabilities Development Command Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ | - | 0.100 | Apr 2022 | - | | 0.100 | Nov 2023 | - | | 0.100 | 0.000 | 0.200 | - |
| EPIAFS Modernization Cybersecurity Support | MIPR | Combat Capabilities Development | - | 0.100 | Nov 2021 | - | | 0.100 | Nov 2023 | - | | 0.100 | 0.000 | 0.200 | - |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) CP2 I Precision Fire Technology Improvements |
|--|--|--|

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------|-----------------------------------|--|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| | | Command Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ | | | | | | | | | | | | | |
| Subtotal | | | - | 2.660 | | - | | 1.992 | | - | | 1.992 | 0.000 | 4.652 | N/A |

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|-----------------------------------|--|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Excalibur Ib High Pressure Setback Testing | MIPR | Army Test and Evaluation Command (ATEC), Yuma Proving Grounds : Yuma, AZ | - | 0.525 | Jul 2022 | - | | - | | - | | - | 0.000 | 0.525 | - |
| Excalibur Ib Safety Margin and Reliability Testing | MIPR | Army Test and Evaluation Command (ATEC), Yuma Proving Grounds : Yuma, AZ | - | 0.968 | Jul 2022 | - | | - | | - | | - | 0.000 | 0.968 | - |
| EPIAFS Modernization Environmental Testing | MIPR | Combat Capabilities Development Command Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ | - | 0.100 | Aug 2022 | - | | 0.100 | Aug 2024 | - | | 0.100 | 0.000 | 0.200 | - |
| EPIAFS Modernization Firing Testing | MIPR | Combat Capabilities Development Command Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ | - | 0.100 | Aug 2022 | - | | 0.100 | Aug 2024 | - | | 0.100 | 0.000 | 0.200 | - |
| Subtotal | | | - | 1.693 | | - | | 0.200 | | - | | 0.200 | 0.000 | 1.893 | N/A |

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|---|--------------------|----------------|--|--|--|---------------------|--|--|--|----------------------|-------------------------|-------------------|---------------------------------|
| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | Date: March 2023 | | | | | |
| Appropriation/Budget Activity 2040 / 7 | | | | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | | | | Project (Number/Name) CP2 / Precision Fire Technology Improvements | | | | | |
| | Prior Years | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
| Project Cost Totals | - | 9.634 | | - | | 3.451 | | - | | 3.451 | 0.000 | 13.085 | N/A |

Remarks
EPIAFS = Enhanced Portable Inductive Artillery Fuze Setter

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) CP2 / <i>Precision Fire Technology Improvements</i> | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| EPIAFS Modernization | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Configuration Management | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Configuration Management | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Setter / Software Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Setter / Software Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Requirements & Architecture Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Requirements & Architecture Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Power / Data Transmission Trade Studies | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Power / Data Transmission Trade Studies | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Developmental Projectile & Fuze Setting Integration | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Developmental Projectile & Fuze Setting Integration | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ERCA Setting Integration | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ERCA Increased Rate of Fire Setting Integration | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Design For Reliability & Testing Trade Studies | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Design For Reliability & Testing Trade Studies | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Excalibur lb Modernization | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Pressure Setback Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| High Pressure Setback Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Margin Improvements Analysis | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Margin Improvements Analysis | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Safety & Reliability Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Safety & Reliability Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) CP2 / <i>Precision Fire Technology Improvements</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| EPIAFS Modernization | 1 | 2022 | 4 | 2026 |
| Configuration Management | 1 | 2022 | 4 | 2028 |
| Setter / Software Development | 3 | 2022 | 4 | 2028 |
| Requirements & Architecture Development | 1 | 2022 | 4 | 2023 |
| Power / Data Transmission Trade Studies | 1 | 2022 | 2 | 2024 |
| Developmental Projectile & Fuze Setting Integration | 1 | 2022 | 2 | 2023 |
| ERCA Setting Integration | 3 | 2022 | 3 | 2025 |
| Design For Reliability & Testing Trade Studies | 4 | 2022 | 4 | 2024 |
| Excalibur Ib Modernization | 1 | 2022 | 4 | 2022 |
| High Pressure Setback Testing | 1 | 2022 | 1 | 2023 |
| Margin Improvements Analysis | 1 | 2022 | 1 | 2023 |
| Safety & Reliability Testing | 1 | 2022 | 2 | 2023 |

Note

EPIAFS = Enhanced Portable Inductive Artillery Fuze Setter
 ERCA = Extended Range Cannon Artillery

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|--|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER2 / Close Combat Technology |
|--|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| ER2: Close Combat Technology | - | 3.341 | 5.307 | 0.687 | - | 0.687 | - | - | - | - | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Project ER2 Close Combat Technology includes development efforts to upgrade Close Combat technologies, energetics, and munitions, such as counter explosives, grenades, demolitions, shoulder launched munitions, pyrotechnic simulators, countermeasure flares, non-lethal ammunition/systems, and networked munitions and mines, that have been fielded or have received approval for full rate production. FY 2024 funding will allow the project to identify, characterize, study, analyze, test and develop technologies to resolve close combat munition reliability, safety, environmental, storage, standardization, obsolescence and manufacturing/producibility issues.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| <p>Title: M330 Obscuration Grenade</p> <p>Description: The M330 is an improved obscurant grenade that provides the warfighter with screening performance equivalent to the legacy AN-M8 smoke grenade. The M330 will replace the toxic carcinogen fill used in the AN-M8 smoke grenade with a more environmentally friendly formulation. The legacy AN-M8 has been restricted to use in contingency operations only due to its toxic effects. The M83 training smoke grenade currently used in lieu of the AN-M8 in both training and tactical operations does not give the screening performance comparable to the legacy AN-M8. Soldiers must also use three M83 grenades to produce obscuration effects comparable to a single AN-M8 grenade. The M330 will not only reduce the Soldier's combat load but will also provide sufficient tactical obscuration compared to the M83 thereby increasing Soldier mobility and survivability during operations under enemy fire.</p> <p>FY 2023 Plans: FY 2023 funding supports the completion of the hardware build for Product Qualification Testing (PQT) and the begins the qualification testing in support of Type Classification.</p> <p>FY 2024 Plans: FY 2024 funding supports the completion of the PQT and preparation for Type Classification.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY24 funding required to support Type Classification.</p> | 1.137 | 3.269 | 0.300 |
| <p>Title: M67 (G881) Fragmentation Hand Grenade</p> <p>Description: The M67 Hand Grenade uses the M213 fuze which does not meet Insensitive Munitions (IM) requirements. This program is a modernization effort that will replace the legacy M67 with a new IM compliant system which greatly increases the safety of the warfighter as it will make the M67 less susceptible to inadvertent detonation. This effort will evaluate potential IM</p> | 1.432 | 1.135 | 0.287 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER2 / <i>Close Combat Technology</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>compliant foreign fuze candidates as a replacement to the current M213 fuze and incorporate an IM compliant explosive fill. The new IM compliant fuze and explosive fill will be qualified for incorporation into the M67 design and the TDP will be updated. The M67 is an enabler for Soldier Lethality as it provides Soldiers with a highly effective capability that is easy to throw and can produce casualties to enemy combatants via a 15 meter fragmentation radius. This capability allows for increased lethality of dismounted Soldiers making the unit more efficient and lethal.</p> <p>FY 2023 Plans: FY 2023 funding supports the completion of Engineering testing.</p> <p>FY 2024 Plans: FY 2024 funding will finalize the load, assemble, pack (LAP) of qualification hardware in support of qualification testing of the IM compliant fuze for the M67 fragmentation grenade.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 funding required to LAP hardware in preparation for qualification testing.</p> | | | | |
| <p>Title: M112 Demolition Block - Alternate Fill</p> <p>Description: This effort will qualify a more environmentally friendly alternative explosive fill (PAX-52) for the M112 demolition block. The alternate fill provides a more reliable demolition for use in cold and extreme cold conditions. It also eliminates the need for Polyisobutylene (PIB) a current OCONUS single point failure within the production of the M112 Demolition Block.</p> <p>FY 2023 Plans: FY 2023 funding supports the evaluation and Army Energetic Materials Qualification Board (EMQB) required delta qualification testing of Ensign Bickford produced PAX-52.</p> <p>FY 2024 Plans: FY 2024 funding will support the completion of EMQB required delta qualification testing of Ensign Bickford produced PAX-52 and LAP of blocks for testing.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 funding required to complete EMQB required delta qualification testing.</p> | | 0.284 | 0.661 | 0.100 |
| <p>Title: M82 Simulant Smoke Practice Grenade</p> <p>Description: This effort is to address performance issues with the current M82 design. The M82 Simulant Smoke Grenade is a 66mm grenade fielded to train in the handling, usage and deployment of the M76 infra-red, M81 graphite and brass flake and L8 Red Phosphorus grenades. This effort will modernize the M82 and will eliminate the end item reliability issues experienced by</p> | | 0.365 | 0.140 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER2 / Close Combat Technology |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| <p>the legacy design. The improvement to the design will provide the soldier with a reliable training device thus increasing Soldier readiness.</p> <p>FY 2023 Plans: FY 2023 funding supports qualification of the booster-burster.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The decrease in M82 Simulant Smoke Practice Grenade effort is a result of the completion of required purchases in FY23 needed to finalize the actions need in support of qualification testing.</p> | | | |
| <p>Title: M18 Smoke Grenade Dye</p> <p>Description: Smoke Grenade Dyes are a key component of the M18 Color Smoke Hand Grenades (Green, Yellow, Red, Violet) and are among items at risk for future production. The M18 Smoke Grenade is an enabler to Soldier Lethality as it provides the Warfighter with a multi-functional capability that provides both effective marking and screening allowing the Unit to be more efficient and effective in combat operations. The anthraquinone-based intermediates necessary for dye production are foreign-sourced (non- National Technology and Industrial Base (NTIB)) and there are no alternative dye formulations identified to date. This effort seeks to prove out a pilot-scale process to synthesize the necessary intermediates that could lead to a dye producer within the NTIB. This will increase availability dyes necessary for production thereby increasing readiness for the warfighter.</p> | 0.123 | - | - |
| <p>Title: SBIR/STTR Transfer</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC 638</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638</p> | - | 0.102 | - |
| Accomplishments/Planned Programs Subtotals | 3.341 | 5.307 | 0.687 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • E31911: GRENADE, HAND:SMOKE, SCREENING, M330 | - | - | 2.968 | - | 2.968 | - | 3.027 | 3.058 | 3.089 | 0.000 | 12.142 |
| • E32000: GRENADE, Hand, Frag, Delay, M67 | 3.358 | 5.005 | 0.457 | - | 0.457 | 0.104 | 0.313 | 0.310 | 0.311 | 0.000 | 9.858 |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER2 / <i>Close Combat Technology</i> |
|--|---|--|

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

| Line Item | FY 2022 | FY 2023 | FY 2024 | FY 2024 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|------------|
| | | | Base | OCO | Total | | | | | Complete | Total Cost |
| • E50601: <i>CHARGE, Demo Blk Comp C-4 1-1/4 lb, M112</i> | 1.982 | - | 0.000 | - | 0.000 | - | - | - | - | 0.000 | 1.982 |
| • E34001: <i>GRENADE, Hand, Smoke, Green, M18</i> | 2.999 | 2.864 | 3.554 | - | 3.554 | 3.515 | 3.479 | 3.536 | 3.593 | 0.000 | 23.540 |
| • E34002: <i>GRENADE, Hand, Smoke, Yellow, M18</i> | 5.760 | 2.424 | 3.444 | - | 3.444 | 3.405 | 3.460 | 3.517 | 3.574 | 0.000 | 25.584 |
| • E34003: <i>GRENADE, Hand, Smoke, Red, M18</i> | - | - | 3.650 | - | 3.650 | 3.710 | 3.771 | 3.834 | 3.897 | 0.000 | 18.862 |
| • E34004: <i>GRENADE, Hand, Smoke, Violet, M18</i> | - | 2.789 | 3.395 | - | 3.395 | 3.450 | 3.506 | 3.563 | 3.621 | 0.000 | 20.324 |

Remarks

D. Acquisition Strategy

The strategy for the M330 is to qualify an alternative fill as the legacy AN-M8 grenade is restricted for use in contingency operations only due to its toxicity. Development of the M330 will ensure the Warfighter has tactical smoke obscuration that is environmentally friendly. Once the smoke fill is qualified, the plan is to conduct Design Verification Testing, system qualification testing, implement the final design into the technical data package, and prepare for LRIP and production.

The strategy for the legacy M67 Fragmentation Hand Grenade is to replace the legacy M67 with a new IM compliant system which greatly increases the safety of the warfighter as it will make the M67 less susceptible to inadvertent detonation. This involves integrating an IM compliant fuze along with an IM compliant explosive fill into the M67 offensive hand grenade. The new design will be tested and qualified in order to mitigate the insensitive munition hazards associated with the explosive fill and the fuze technology. Follow-on procurement efforts will be competitive pending market research.

Upon qualification of PAX-52 as a bulk explosive and qualification for use in the M112 as an alternative to C4, it will be incorporated into the M112 TDP via an Engineering Change Proposal (ECP). Starting in FY 2027, a new contract for M112 will be established. M112 orders will be placed for the alternate (PAX-52) fill configuration, unless the current C4 configuration is specifically requested.

The M82 program is modernizing the design of specific parts to address reliability issues and to make it more producible. The new design will be validated through testing. The Technical Data Package (TDP) will be updated to implement the changes. The program will utilize an Other Transaction Authority (OTA) contract to demonstrate the design improvements.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER2 / <i>Close Combat Technology</i> |

The strategy for the M18 Smoke Grenade is to prove out a pilot-scale process to synthesize the necessary intermediates that could lead to a producer within the NTIB thus eliminating a foreign, single point source for smoke grenade production. The program will utilize an Other Transaction Authority (OTA) acquisition vehicle to demonstrate a novel, prototype method of colored smoke dye production.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER2 / Close Combat Technology |
|--|--|---|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| SBIR/STTR Transfer | TBD | Various : Various | - | - | | 0.102 | | - | | - | | - | 0.000 | 0.102 | Continuing |
| Subtotal | | | - | - | | 0.102 | | - | | - | | - | 0.000 | 0.102 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| M330 Hardware Build and LAP | MIPR | Pine Bluff Arsenal : White Hall, AR | - | - | | 0.750 | Feb 2023 | - | | - | | - | 0.000 | 0.750 | - |
| M67 (G881) Fragmentation Hand Grenade | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, NJ | 0.401 | - | | 0.379 | May 2023 | - | | - | | - | 0.000 | 0.780 | - |
| M67 Load Assemble and Pack (LAP) | C/FFP | Battelle Memorial Institute : Columbus, OH | 0.242 | - | | 0.291 | Aug 2023 | - | | - | | - | 0.000 | 0.533 | - |
| M67 Change in packaging Build | TBD | TBD : TBD | - | - | | 0.100 | May 2023 | - | | - | | - | 0.000 | 0.100 | - |
| M112 Demolition Block - Alternate Fill Effort Materials | C/FFP | Leidos Inc : Reston, VA | - | 0.118 | Sep 2022 | 0.180 | May 2023 | - | | - | | - | 0.000 | 0.298 | - |
| M330 Enhanced Obscuration Grenade | MIPR | Pine Bluff Arsenal : White Hall, AR | 0.190 | 0.150 | Apr 2022 | - | | - | | - | | - | 0.000 | 0.340 | - |
| M67 DEVCOM AC upgraded LAP tooling | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, NJ | - | 0.190 | Feb 2023 | - | | - | | - | | - | 0.000 | 0.190 | - |
| M67 Energetic Material for IM Testing | C/IDIQ | Joint Munitions Command : Rock Island, IL | - | 0.139 | Jun 2022 | - | | - | | - | | - | 0.000 | 0.139 | - |
| M112 Demolition Block - Alternate Fill Effort Materials | C/IDIQ | Joint Munitions Command : Rock Island, IL | - | 0.016 | Feb 2023 | - | | - | | - | | - | 0.000 | 0.016 | - |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER2 / Close Combat Technology |
|--|--|---|

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|--|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| M82 Simulant Smoke Practice Grenade | C/FFP | Battelle Memorial Institute : Columbus, OH | - | 0.257 | Jan 2023 | - | | - | | - | | - | 0.000 | 0.257 | - |
| M67 Fragmentation Fuze Prototype | C/CPIF | IMI Systems : Israel | 0.194 | - | | - | | - | | - | | - | 0.000 | 0.194 | - |
| M18 Smoke Grenade | C/FFP | Leidos Inc : Reston, VA | 0.170 | - | | - | | - | | - | | - | 0.000 | 0.170 | - |
| Subtotal | | | 1.197 | 0.870 | | 1.700 | | - | | - | | - | 0.000 | 3.767 | N/A |

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|--|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| M330 Enhanced Obscuration Grenade | MIPR | DEVCOM Chemical Biological Center : Edgewood, MD | 1.416 | 0.499 | Mar 2022 | 0.251 | Aug 2023 | 0.100 | Oct 2023 | - | | 0.100 | Continuing | Continuing | - |
| M330 Enhanced Obscuration Grenade | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, NJ | 1.009 | 0.488 | Mar 2022 | 0.831 | Apr 2023 | 0.200 | Oct 2023 | - | | 0.200 | Continuing | Continuing | - |
| M67 (G881) Fragmentation Hand Grenade | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, NJ | 0.725 | 0.903 | Jun 2022 | 0.240 | Feb 2023 | 0.287 | Oct 2023 | - | | 0.287 | Continuing | Continuing | - |
| M112 Demolition Block - Alternate Fill | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, NJ | 0.400 | - | | 0.256 | Jan 2023 | 0.100 | Oct 2023 | - | | 0.100 | Continuing | Continuing | - |
| M67 Interim End User Assessment | C/CPFF | Millennium : Picatinny Arsenal, NJ | - | - | | 0.125 | Mar 2023 | - | | - | | - | 0.000 | 0.125 | - |
| M67 Fragmentation Hand Grenade Shipping | Allot | Shipping : Picatinny Arsenal, NJ | 0.003 | 0.030 | Nov 2022 | - | | - | | - | | - | 0.000 | 0.033 | - |
| M82 Simulant Smoke Practice Grenade | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, NJ | 0.510 | 0.005 | May 2022 | - | | - | | - | | - | 0.000 | 0.515 | - |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER2 / Close Combat Technology |
|--|--|---|

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| M18 Smoke Grenade | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, NJ | 0.030 | 0.048 | Dec 2022 | - | | - | | - | | - | 0.000 | 0.078 | - |
| PD CAPS Warhead Specialist | C/CPFF | American Systems Corporation : Chantilly, VA | - | 0.038 | Jan 2023 | - | | - | | - | | - | 0.000 | 0.038 | - |
| Subtotal | | | 4.093 | 2.011 | | 1.703 | | 0.687 | | - | | 0.687 | Continuing | Continuing | N/A |

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| M330 Qualification Testing | MIPR | ATEC : Aberdeen Proving Ground, MD | - | - | | 0.837 | Mar 2023 | - | | - | | - | 0.000 | 0.837 | - |
| M330 Air Drop and E3 Testing | MIPR | TBD : TBD | - | - | | 0.600 | Apr 2023 | - | | - | | - | 0.000 | 0.600 | - |
| M112 Demolition Block - Alternate Fill Delta EMQB Tests | TBD | DEVCOM Armaments Center : Picatinny Arsenal, NJ | - | - | | 0.175 | May 2023 | - | | - | | - | 0.000 | 0.175 | - |
| M112 Demolition Block - Alternate Fill Engineering Tests | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, NJ | - | - | | 0.050 | Jul 2023 | - | | - | | - | 0.000 | 0.050 | - |
| M82 Simulant Smoke Practice Grenade | MIPR | Pine Bluff Arsenal : White Hall, AR | 0.695 | 0.103 | Mar 2022 | 0.140 | Jun 2023 | - | | - | | - | 0.000 | 0.938 | - |
| M67 Engineering Testing | MIPR | Aberdeen Test Center : Aberdeen Proving Grounds, MD | 0.503 | 0.170 | Nov 2022 | - | | - | | - | | - | 0.000 | 0.673 | - |
| M112 Demolition Block - Alternate Fill Penetrometer & Modified Energy Output Testing | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, NJ | - | 0.150 | Jul 2022 | - | | - | | - | | - | 0.000 | 0.150 | - |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER2 / Close Combat Technology |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | | | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|--|--|--|--|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | |
| M330 Obscuration Grenade | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tech Data Package (TDP) Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Engineering Tests | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Product Qualification Hardware Procurement & Build | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Production Qualification Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Type Classification & Material Release Approvals & Certs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Finalize & Certify TDP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Product Readiness Review | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M67 Fragmentation Hand Grenade - Insensitive Munition | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test/Evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Qualification Hardware Build | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Qualification Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Type Classification Activities | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER2 / Close Combat Technology |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---------|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| M67 Insensitive Munitions (IM) Type Classification Standard | | | | | | | | | | | | | | | | | | | | 2 TC | | | | | | | | |
| M112 Demolition Block – Alternate Fill | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Produce 50lb Batches of PAX-52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Delta EMQB of EBAD bulk PAX-52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Produce and LAP 1500 M112-like Blocks | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Design Verification Testing (DVT) & Insensitive Munition... | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M112 ECP | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contract Award | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M82 CH-6 Booster Replacement | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Baseline Testing and Dented Testing on the CH-6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Booster Engineering Tests of BPXN-5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Booster Burster Qualification | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Update Technical Data Packages (TDPs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER2 / <i>Close Combat Technology</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | | | | | |
|------------------------------|---------|---|---|---|---------|---|---|---|---|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|--|--|--|--|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | |
| M18 Smoke Grenade Dye | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Prototype Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Production Decision | | | | | | | | |  Decision Point | | | | | | | | | | | | | | | | | | | | | | | |
| Synthetic Process TDP | | | | | | | | |  TDP | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER2 / <i>Close Combat Technology</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| M330 Obscuration Grenade | 1 | 2017 | 4 | 2025 |
| Tech Data Package (TDP) Development | 4 | 2021 | 1 | 2023 |
| Engineering Tests | 1 | 2022 | 1 | 2023 |
| Product Qualification Hardware Procurement & Build | 1 | 2023 | 3 | 2023 |
| Production Qualification Testing | 3 | 2023 | 2 | 2024 |
| Type Classification & Material Release Approvals & Certs | 2 | 2024 | 2 | 2025 |
| Finalize & Certify TDP | 1 | 2025 | 2 | 2025 |
| Product Readiness Review | 2 | 2025 | 2 | 2025 |
| M67 Fragmentation Hand Grenade - Insensitive Munition | 1 | 2021 | 4 | 2027 |
| Test/Evaluation | 1 | 2021 | 3 | 2023 |
| Qualification Hardware Build | 4 | 2023 | 4 | 2024 |
| Qualification Testing | 1 | 2025 | 4 | 2025 |
| Type Classification Activities | 1 | 2026 | 4 | 2026 |
| M67 Insensitive Munitions (IM) Type Classification Standard | 4 | 2026 | 4 | 2026 |
| M112 Demolition Block - Alternate Fill | 4 | 2021 | 1 | 2027 |
| Produce 50lb Batches of PAX-52 | 2 | 2023 | 3 | 2023 |
| Delta EMQB of EBAD bulk PAX-52 | 4 | 2023 | 4 | 2024 |
| Produce and LAP 1500 M112-like Blocks | 4 | 2024 | 4 | 2024 |
| Design Verification Testing (DVT) & Insensitive Munitions (IM) Testing | 3 | 2025 | 1 | 2026 |
| M112 ECP | 1 | 2026 | 3 | 2026 |
| Contract Award | 1 | 2026 | 1 | 2027 |
| M82 CH-6 Booster Replacement | 1 | 2017 | 3 | 2022 |

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER2 / <i>Close Combat Technology</i> |
|--|---|--|

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Baseline Testing and Dented Testing on the CH-6 | 1 | 2022 | 4 | 2022 |
| Booster Engineering Tests of BPXN-5 | 1 | 2023 | 3 | 2023 |
| Booster Burster Qualification | 4 | 2023 | 4 | 2023 |
| Update Technical Data Packages (TDPs) | 4 | 2023 | 1 | 2024 |
| M18 Smoke Grenade Dye | 1 | 2021 | 1 | 2023 |
| Prototype Testing | 4 | 2021 | 2 | 2023 |
| Production Decision | 3 | 2023 | 3 | 2023 |
| Synthetic Process TDP | 3 | 2023 | 3 | 2023 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | | | | Project (Number/Name) ER5 / <i>Indirect Fire and Fuze Technology</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| ER5: <i>Indirect Fire and Fuze Technology</i> | - | 2.576 | 2.454 | 2.225 | - | 2.225 | 2.301 | 2.303 | 2.328 | 2.353 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Indirect Fire and Fuze Technology Project includes product improvement development efforts to upgrade indirect fire weapon systems and munitions that are fielded and/or in production. Initiatives include improved target engagement, increased reliability, availability, maintainability, and safety, standardization and interoperability with weapons and munitions of Allied Nations, defense exportability features, reduction of failure mechanisms, and supply chain risk through the introduction of new and alternative technology and materiel solutions, improvement of manufacturing methods and their associated production and life cycle support processes, new capabilities in response to the evolving and emerging threats and countermeasures, and reduction/elimination of potential environmental and health risks associated with these products. Fiscal Year (FY) 2024 funding will support Fuze Technology Integration (FTI) efforts to complete the M783 mortar fuze evaluation, design improvement and testing to preclude early fuze functioning; expand and refine the fuze critical components database to identify and mitigate obsolescence; continue to mature extended duration artillery fuze power sources; develop and evaluate M734A1 mortar fuze custom application specific integrated circuit (ASIC) signal processors and accelerometers; integrate electronic and energetic technologies into the M213 hand grenade fuze to increase fuze and explosive safety; evaluate miniature reserve cell batteries for use in 30mm to 40mm medium caliber fuzes; and complete improvements to proximity fuze sensor hardware in the loop testing infrastructure; and update mortar fuze flow controller tester components.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: Fuze Technology Integration (FTI) | 2.576 | 2.364 | 2.225 |
| <p>Description: This project implements new and mature technologies into fuzing systems to preclude obsolescence, maximize standardization, enhance performance, and improve the safety and exportability of existing munitions. The FTI project addresses two major areas: (1) analysis/risk mitigation and (2) block upgrades. The analysis and risk mitigation efforts will identify second sources for fuzing systems that may reduce costs by providing competition and maintain production when sources or parts are no longer available. It will also allow for the performance enhancement of current ammunition items by conducting studies of major fuze components to detect, identify, and correct latent defects. The second major area is block upgrades, which will identify and perform studies on improvements to fuzes, increase commonality of fuze components and requirements. Block upgrades will enable the introduction of the latest technologies into fuzing, keep the fuzing design current to avoid obsolescence issues and add capabilities.</p> <p>FY 2023 Plans: Analysis/Risk Mitigation: Complete conventional artillery fuze evaluations for compatibility with LRPF projectiles; expand and refine the fuze critical components database to identify and mitigate obsolescence and single point components & processes;</p> | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER5 / <i>Indirect Fire and Fuze Technology</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| <p>and develop and evaluate M734A1 mortar fuze custom application specific integrated circuit (ASIC) signal processor and accelerometer.</p> <p>Block Upgrade: Complete implementing the M739A1/M782 artillery fuze setback mass drop safety improvement; continue integrating electronic and energetic technologies into the M213 hand grenade fuze to increase fuze and explosive safety; continue maturing extended duration artillery fuze power sources; support M783 mortar fuze evaluation, design improvement and testing to preclude early fuze functioning; and evaluate miniature reserve cell batteries for use in 30mm to 40mm medium caliber fuzes.</p> <p>FY 2024 Plans: Analysis/Risk Mitigation: Complete M783 mortar fuze evaluation, design improvement and testing to preclude early fuze functioning; continue to expand and refine the fuze critical components database to identify and mitigate obsolescence and single point components & processes; and continue integrating electronic and energetic technologies into the M213 hand grenade fuze to increase fuze and explosive safety. Block Upgrade: Continue maturing extended duration artillery fuze power sources; evaluate miniature reserve cell batteries for use in 30mm to 40mm medium caliber fuzes; and complete update of the proximity fuze sensor hardware in the loop testing infrastructure.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease in funding in FY 2024 as a result of previously completed FTI efforts.</p> | | | |
| <p>Title: SBIR/STTR Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC §638</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC 638</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638</p> | - | 0.090 | - |
| Accomplishments/Planned Programs Subtotals | 2.576 | 2.454 | 2.225 |

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

N/A

Remarks

D. Acquisition Strategy

Fuze Technology Integration (FTI) will improve current production munitions by exploiting available fuzing technologies and integrating these technologies into currently fielded and/ or in production fuzes to provide safer, more producible, and more lethal fuzing solutions. FTI develops second source suppliers and resolves component

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER5 / <i>Indirect Fire and Fuze Technology</i> |
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obsolescence issues to mitigate risk and prevent production interruptions in order to continue to provide safer, more reliable munitions for the Warfighter with significant risk reduction to fuze production. The effort is a continuation of studies, analysis, evaluations, and insertion of fuzing technologies and safe and arm devices in production and fielded fuzes. This program will implement these technologies into fuzing systems to preclude component obsolescence, maximize standardization, enhance performance, and improve the safety, reliability, and exportability of existing munitions. FTI utilizes both the competitively awarded DoD Ordnance Technology Consortium (DOTC) Other Transaction Agreement (OTA) to produce prototypes of the fuze technologies and devices, and Federal Acquisition Regulation (FAR) based contracts to implement proven efforts into production fuzes.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | |
|--|------------------------|--|-------------|--|------------|---------|------------|--------------|---|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | | Project (Number/Name) | | | | | | |
| 2040 / 7 | | | | PE 0607131A / Weapons and Munitions Product Improvement Programs | | | | | ER5 / Indirect Fire and Fuze Technology | | | | | | |
| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| SBIR/STTR Transfer | TBD | Various : Various | - | - | | 0.090 | | - | | - | | - | 0.000 | 0.090 | - |
| Subtotal | | | - | - | | 0.090 | | - | | - | | - | 0.000 | 0.090 | N/A |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Fuze Technology Integration Development | MIPR | DoD Ordnance Technology Consortium (DOTC) : Various | 6.346 | 0.836 | Nov 2021 | 1.396 | Nov 2022 | 1.125 | Nov 2023 | - | | 1.125 | 0.000 | 9.703 | - |
| Subtotal | | | 6.346 | 0.836 | | 1.396 | | 1.125 | | - | | 1.125 | 0.000 | 9.703 | N/A |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Fuze Technology Integration Engineering Support | MIPR | Combat Capabilities Development Command Armaments Center (DEVCOM AC) : Picatinny Arsenal, NJ | 5.226 | 1.740 | Nov 2021 | 0.918 | Nov 2022 | 1.050 | Nov 2023 | - | | 1.050 | 0.000 | 8.934 | - |
| Subtotal | | | 5.226 | 1.740 | | 0.918 | | 1.050 | | - | | 1.050 | 0.000 | 8.934 | N/A |
| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Fuze Technology Integration Ballistic Testing | MIPR | Army Test and Evaluation Command (ATEC) : | 0.100 | - | | 0.050 | May 2023 | 0.050 | May 2024 | - | | 0.050 | 0.000 | 0.200 | - |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER5 / Indirect Fire and Fuze Technology | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Fuze Technology Integration | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MEMS G-Switch Producibility Improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mortar Fuze Microcontroller Replacement | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hand Grenade Fuze Improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M739A1 Delay Mode Enhancements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Long Range Precision Fires Artillery Fuze Compatibility | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M783 Mortar Training Fuze Project Improvement | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alternate Suppliers for Critical Fuzing Components | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Extended Range Gun Fired Fuzing Power Sources | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mortar Prox Fuze Product Improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hand Grenade Safety Improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Medium Caliber Miniature Power Sources | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tracking Prox Technology Insertion | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER5 / Indirect Fire and Fuze Technology |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| M739A1/M782 Artillery Fuze Setback Mass Improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M782 Artillery Electronic Safe and Arm | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Proximity Fuze Sensor Hardware in the Loop Testing Infra... | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mortar Fuze Flow Controller | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER5 / <i>Indirect Fire and Fuze Technology</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Fuze Technology Integration | 1 | 2017 | 4 | 2029 |
| MEMS G-Switch Producibility Improvements | 1 | 2019 | 3 | 2023 |
| Mortar Fuze Microcontroller Replacement | 1 | 2021 | 4 | 2024 |
| Hand Grenade Fuze Improvements | 1 | 2021 | 4 | 2023 |
| M739A1 Delay Mode Enhancements | 1 | 2020 | 4 | 2023 |
| Long Range Precision Fires Artillery Fuze Compatibility | 1 | 2022 | 2 | 2024 |
| M783 Mortar Training Fuze Project Improvement | 1 | 2022 | 4 | 2025 |
| Alternate Suppliers for Critical Fuzing Components | 1 | 2022 | 4 | 2029 |
| Extended Range Gun Fired Fuzing Power Sources | 1 | 2023 | 4 | 2026 |
| Mortar Prox Fuze Product Improvements | 1 | 2024 | 4 | 2029 |
| Hand Grenade Safety Improvements | 1 | 2023 | 4 | 2026 |
| Medium Caliber Miniature Power Sources | 1 | 2024 | 4 | 2028 |
| Tracking Prox Technology Insertion | 1 | 2026 | 4 | 2029 |
| M739A1/M782 Artillery Fuze Setback Mass Improvements | 1 | 2023 | 4 | 2024 |
| M782 Artillery Electronic Safe and Arm | 1 | 2026 | 4 | 2029 |
| Proximity Fuze Sensor Hardware in the Loop Testing Infrastructure | 1 | 2024 | 4 | 2025 |
| Mortar Fuze Flow Controller | 1 | 2023 | 4 | 2024 |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER6 / Direct Fire Technology |
|--|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| ER6: Direct Fire Technology | - | 24.443 | 49.413 | 2.062 | - | 2.062 | - | - | - | - | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Direct Fire Technology funding will be used to support direct fire ammunition from small caliber ammunition, medium caliber ammunition and large caliber ammunition enhancements to lethality, effectiveness, survivability, accuracy and general product improvements. Fiscal Year (FY) 2024 funding supports a number of small caliber ammunition projects including improvements to training ammunition; improvements to make small caliber primers more environmentally friendly; optimization of handgun ammunition; exploring precision sniper improvements and continuing the effort to reduce Soldier load by developing lightweight ammunition. Improvements to medium caliber ammunition include lethality and safety enhancements. Improvements to 105mm and 120mm tank ammunition include examination and implementation of performance enhancement and improvements to tracer, combustible cartridge case and 105mm Advanced Multipurpose (AMP).

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| <p>Title: Small Caliber Ammunition Product Improvements</p> <p>Description: Develop, demonstrate, and qualify improvements for 5.56mm, 7.62mm, .50 cal, Next Generation Squad Weapon ammunition, Precision Sniper ammunition and Handgun ammunition to achieve an increase in overall lethality and effectiveness.</p> <p>FY 2023 Plans: FY 2023 request will support development efforts for lightweight case .50 Caliber variant, material assessment, finalize design, and procure qualification sample, conduct qualification test. FY 2023 request will support an interim metallic solution development effort while developing the polymer case solution for lightweight case 7.62mm ammunition variant. FY 2023 will down-select to a single metallic solution, test polymer data, perform polymer aging study and material analysis, and conduct Lake City Army Ammunition Plant (LCAAP) Impact Study. FY 2023 request will support completing pre-production qualification testing (PPQT) for 7.62mm green primer, completing Energetic Qualification (EMQB) and initiate prototype machine design. FY 2023 request will support improved dispersion and lethality for precision sniper ammunition particularly M1158. FY 2023 request will support testing to field handgun improvements such as Enhanced Ball Round (EBR) and Breeching capability. FY 2023 request will support PPQT safety release, limited user evaluation, critical design review of 7.62mm M118LRA1 which improves sniper lethality.</p> <p>FY 2024 Plans: FY 2024 request will support development efforts for lightweight case .50 Caliber variant, continue material assessment, continue finalizing design, procure qualification sample, conduct qualification test.</p> | 4.407 | 5.179 | 1.062 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER6 / <i>Direct Fire Technology</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>FY 2024 request will support an interim metallic solution development effort while developing the polymer case solution for lightweight case 7.62mm ammunition variant. FY 2024 will down-select to a single metallic solution, test polymer data, perform polymer aging study and material analysis, and conduct Lake City Army Ammunition Plant (LCAAP) impact study.</p> <p>FY 2024 request will support completing pre-production qualification testing (PPQT) for 7.62mm green primer, completing Energetic Qualification (EMQB) and initiate prototype machine design.</p> <p>FY 2024 request will support improved dispersion and lethality for precision sniper ammunition particularly M1158.</p> <p>FY 2024 request will support testing to field handgun improvements such as Enhanced Ball Round (EBR) and Breeching capability.</p> <p>FY 2024 request will continue to support 7.62mm M118LRA1 which improves sniper lethality.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease as lightweight case solutions are down selected.</p> | | | | |
| <p>Title: Medium Caliber Ammunition Product Improvements</p> <p>Description: Develop, demonstrate, and qualify improvements for 20mm, 25mm, 30mm, and 40mm ammunition. 40mm M433E1 will improve lethality (fragmentation) of the M433 grenade. The 40mm M550 fuze replacement will replace the single stage fuze with a dual spinlock fuze to improve safety and performance reliability. Improve safety, performance and reliability issues on the 20mm M940 ammunition.</p> <p>FY 2023 Plans: FY 2023 funding supports continuing various 20mm, 30mm, 40mm ammunition improvement efforts, such as investigating safety, performance, reliability issues, and reducing barrel wear. Type Classify M433E1 and M550 fuze improvement. Develop and demonstrate methods for increasing range, increasing system effectiveness through velocity correction, and improving point detonation sensitivity of the XM1166 cartridge. Develop, demonstrate and qualify an improved 40mm Smoke munition, including assessing current formulations compliance with environmental regulations and evaluating producibility of 40mm smoke munitions. Assess the potential to include a capability to obscure heat and Infra-Red (IR) signatures.</p> <p>FY 2024 Plans: FY 2024 funding supports continuing various 20mm, 30mm, 40mm ammunition improvement efforts, such as investigating safety, performance, reliability issues, and reducing barrel wear. Develop and demonstrate methods for increasing range, increasing system effectiveness through velocity correction, and improving point detonation sensitivity of the XM1166 cartridge. Develop, demonstrate and qualify an improved 40mm Smoke munition, including assessing current formulations compliance with environmental regulations and evaluating producibility of 40mm smoke munitions. Assess the potential to include a capability to obscure heat and Infra-Red (IR) signatures.</p> | | 1.033 | 0.500 | 0.500 |
| <p>Title: Tank Ammunition Product Improvements</p> | | 1.003 | 0.500 | 0.500 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER6 / <i>Direct Fire Technology</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>Description: Develop and test potential improvements to 105mm and 120mm gun system ammunition.</p> <p>FY 2023 Plans: FY 2023 funding supports continuing various 105mm and 120mm tank ammunition improvement efforts, including tracer improvements, combustible cartridge case design and fabrication improvements, and continuing efforts to assess the 105mm Advanced Multipurpose (AMP) and 120mm AMP training cartridge/solution. Evaluate 105mm candidate cartridges, perform warhead lethality studies, modeling and simulation, conduct fuze assessment studies, perform propulsion system evaluation, assess fabrication improvements, and perform integration and testing of tank cartridges.</p> <p>FY 2024 Plans: FY 2024 funding supports continuing various 105mm and 120mm tank ammunition improvement efforts, including tracer improvements, combustible cartridge case design and fabrication improvements, and continuing efforts to assess the 105mm Advanced Multipurpose (AMP) and 120mm AMP training cartridge/solution. Evaluate 105mm candidate cartridges, perform warhead lethality studies, modeling and simulation, conduct fuze assessment studies, perform propulsion system evaluation, assess fabrication improvements, and perform integration and testing of tank cartridges.</p> | | | |
| <p>Title: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)</p> <p>Description: Funding transferred in accordance with Title 15 USC §638</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638</p> | - | 0.234 | - |
| Accomplishments/Planned Programs Subtotals | 6.443 | 6.413 | 2.062 |

| | FY 2022 | FY 2023 |
|---|----------------|----------------|
| <p>Congressional Add: Tungsten Manufacturing Affordability Initiative for Armaments</p> <p>FY 2022 Accomplishments: Improve capacity for novel swaging/finishing for long rod penetrators. Scale up production capacity to support emerging fragmentation requirements. Provide a higher level of consistency in material properties, improve capacity for production and surge requirements, and reduce cost. Establish new manufacturing source for industry to produce components for military applications. Perform assessment of deliverables and manufacturing readiness assessments.</p> | 8.000 | - |
| <p>Congressional Add: Printed Electronics (PEEMS)</p> | 5.000 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER6 / <i>Direct Fire Technology</i> | |
| | | FY 2022 | FY 2023 |
| FY 2022 Accomplishments: Meet US Army's Priority to ensure the total Army is ready to deploy fight and win across Multi-Domain Operations. Utilize 10 USC 2368 authority to enhance Army's PEEM Innovation Center of Excellence to design, develop, and integrate Printed Electronics for Producibility that employs the use of cost effective prototyping and fabrication techniques for the manufacture of flexible circuits, power sources, sensors, energy harvesting systems, antennas, MEMS and electronic components to increase force effectiveness and reduce operations and support costs. Partnering with New Jersey Based 501C3, and additional small business to expand opportunities to support DOD objectives. Share and leverage best practices with existing and new strategic thrusts; Agile Innovation Management (AIM), Printed Electronics (PEEMS), and Transformative Manufacturing. Enhance PEEMS. | | | |
| Congressional Add: Lightweight Case for Small Caliber Ammunition (LSCA) | | 5.000 | - |
| FY 2022 Accomplishments: 7.62mm polymer case ammunition delivery and testing .50 Caliber polymer adhesive case study Tested .50 cal LCSA at U.S. Army Test and Evaluation Command in conjunction with USMC. | | | |
| Congressional Add: Smart Manufacturing for Armaments | | - | 5.000 |
| FY 2023 Plans: Development of Automated Manufacturing and Inspection Processing Solutions Automated Inspection Processes for GOCO Data & Image Processing for Munition Inspection Robotic Integration into Manufacturing Process | | | |
| Congressional Add: Additive Manufacturing for Weapons and Armaments Components | | - | 10.000 |
| FY 2023 Plans: Exchange best practices with the organic industrial base and manufacturing industrial base (OIB/MIB) for a Robust US Manufacturing ecosystem. Multiple contracts to advance armaments systems lethality, range, and readiness. Assess components & systems produced for operational effectiveness in extreme environments. Expand the ability to produce munitions on agile production line(s) that can be assessed for "distributed manufacturing models". Assess Stratasy's "Data Security Platform" that is supporting U.S. Government Implementations of 3D Printing. | | | |
| Congressional Add: Refractory Metal Alloys for Hypersonics | | - | 10.000 |
| FY 2023 Plans: Development of refractory metal materials and manufacturing processing solutions. Advanced materials development & prototyping. | | | |
| Congressional Add: Proof of Concept Military-Grade Antimony Trisulfide | | - | 10.000 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER6 / <i>Direct Fire Technology</i> |

| | FY 2022 | FY 2023 |
|--|---------|---------|
| FY 2023 Plans: Using modern extraction and purification technologies design and demonstrate a line layout at a pilot scale to produce natural or synthetic stibnite that complies with MIL-A-159. | | |
| Congressional Add: Next Generation Carbide Ammunition FY 2023 Plans: Expand of tungsten carbide manufacturing cells for ammunition: Facilities and equipment planning; Process tooling design & fabrication; Automation integration. Assess carbide prototypes. | - | 8.000 |
| Congressional Adds Subtotals | 18.000 | 43.000 |

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

N/A

Remarks

D. Acquisition Strategy

The acquisition strategy for small, medium and large caliber product improvements is that all contracts are full and open competition.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER6 / Direct Fire Technology |
|--|--|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| FY23 SBIR/STTR | TBD | Various : Various | - | - | | 0.234 | | - | | - | | - | 0.000 | 0.234 | - |
| Subtotal | | | - | - | | 0.234 | | - | | - | | - | 0.000 | 0.234 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Lightweight Case Ammunition - Polymer 1 | C/FFP | TBD : TBD | 3.000 | 1.000 | Jun 2023 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| Lightweight Case Ammunition - Polymer 2 | C/FFP | TBD : TBD | - | 1.000 | Jun 2023 | - | | - | | - | | - | 0.000 | 1.000 | - |
| Lightweight Case Ammunition | C/FFP | TBD : TBD | - | 1.580 | Feb 2023 | 1.900 | Mar 2023 | - | | - | | - | 0.000 | 3.480 | - |
| M118LRA1 - Contract 1 | C/FFP | Vista : Anoka, Minnesota | 0.730 | 0.565 | Oct 2021 | - | | - | | - | | - | 0.000 | 1.295 | - |
| M118LRA1 - Contract 2 | C/FFP | TBD : TBD | - | - | | 0.675 | Mar 2023 | - | | - | | - | Continuing | Continuing | Continuing |
| Tungsten Manufacturing - Contract | C/FFP | Insitech : Warren, New Jersey | - | 7.450 | Nov 2022 | - | | - | | - | | - | 0.000 | 7.450 | - |
| Printed Electronics PEEMS - Contract | SS/FFP | Nextflex Manufacturing Innovation Institute : Landing, New Jersey | - | 3.252 | Sep 2022 | - | | - | | - | | - | 0.000 | 3.252 | - |
| Smart Manufacturing for Armaments Contract | C/FFP | TBD : TBD | - | - | | 4.500 | Jun 2023 | - | | - | | - | 0.000 | 4.500 | - |
| Refractory Metal Alloys for Hypersonics Manufacturing contract | C/FFP | TBD : TBD | - | - | | 8.500 | Jun 2023 | - | | - | | - | 0.000 | 8.500 | - |
| Refractory Metal Alloys for Hypersonics Prototyping contract | C/FFP | TBD : TBD | - | - | | 0.500 | Jun 2023 | - | | - | | - | 0.000 | 0.500 | - |
| Antimony Sulfide proof of concept contract | C/CPFF | TBD : TBD | - | - | | 8.000 | May 2023 | - | | - | | - | 0.000 | 8.000 | - |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER6 / Direct Fire Technology |
|--|--|--|

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Next Generation Ammunition carbide manufacturing contract | C/FFP | TBD : TBD | - | - | | 6.700 | Jun 2023 | - | | - | | - | 0.000 | 6.700 | - |
| Next Generation Ammunition carbide assessment contract | C/FFP | TBD : TBD | - | - | | 0.500 | Jun 2023 | - | | - | | - | 0.000 | 0.500 | - |
| Additive Manufacturing - Contract | C/FFP | TBD : TBD | - | - | | 3.998 | Jun 2023 | - | | - | | - | 0.000 | 3.998 | - |
| Subtotal | | | 3.730 | 14.847 | | 35.273 | | - | | - | | - | Continuing | Continuing | N/A |

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Engineering Support - Small, Medium & Large Caliber | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, New Jersey | 12.153 | 2.900 | Nov 2021 | 1.666 | Nov 2022 | 0.803 | Nov 2023 | - | | 0.803 | Continuing | Continuing | Continuing |
| Engineering Support - Tungsten Manufacturing | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, New Jersey | - | 0.550 | Aug 2022 | - | | - | | - | | - | 0.000 | 0.550 | - |
| Engineering Support - Printed Electronics PEEMS | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, New Jersey | - | 1.748 | Aug 2022 | - | | - | | - | | - | 0.000 | 1.748 | - |
| Engineering Support - Lightweight Case Ammunition Polymer | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, New Jersey | - | 0.800 | Oct 2022 | - | | - | | - | | - | 0.000 | 0.800 | - |
| Engineering Support - Lightweight Case Ammunition Polymer Navy | MIPR | Naval Surface Warfare Center : Picatinny Arsenal, New Jersey | - | 0.950 | Nov 2022 | - | | - | | - | | - | 0.000 | 0.950 | - |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | |
|--|------------------------|---|-------------|--|------------|---------|------------|------------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | |
| 2040 / 7 | | | | PE 0607131A / Weapons and Munitions Product Improvement Programs | | | | ER6 / Direct Fire Technology | | | | | | | |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Engineering Support - Antimony Sulfide | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, New Jersey | - | - | | 2.000 | May 2023 | - | | - | | - | 0.000 | 2.000 | - |
| Engineering Support - Next Generation Ammunition | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, New Jersey | - | - | | 0.800 | Jun 2023 | - | | - | | - | 0.000 | 0.800 | - |
| Engineering Support - Metal Alloys for Hypersonics | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, New Jersey | - | - | | 1.000 | Jun 2023 | - | | - | | - | 0.000 | 1.000 | - |
| Engineering Support - Smart Manufacturing | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, New Jersey | - | - | | 0.500 | Jun 2023 | - | | - | | - | 0.000 | 0.500 | - |
| Engineering Support - Additive Manufacturing | MIPR | DEVCOM Armaments Center : Picatinny Arsenal, New Jersey | - | - | | 6.002 | Jun 2023 | - | | - | | - | 0.000 | 6.002 | - |
| Subtotal | | | 12.153 | 6.948 | | 11.968 | | 0.803 | | - | | 0.803 | Continuing | Continuing | N/A |
| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ARL Test Support Small Medium & Large Caliber | MIPR | Army Research Lab (ARL) : Aberdeen, Maryland | 3.325 | 1.298 | Feb 2022 | 1.700 | Mar 2023 | 0.603 | Mar 2024 | - | | 0.603 | Continuing | Continuing | Continuing |
| ATC Test Support Small Medium & Large Caliber | MIPR | Aberdeen Test Center (ATC) : Aberdeen, Maryland | 3.998 | 0.100 | Jun 2022 | - | | 0.656 | Mar 2024 | - | | 0.656 | Continuing | Continuing | Continuing |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / Weapons and Munitions Product Improvement Programs | Project (Number/Name) ER6 / Direct Fire Technology |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Small Caliber Ammunition Product Improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Small Caliber Ammunition Product Improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Medium Caliber Ammunition Product Improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Medium Caliber Ammunition Product Improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tank Ammunition Product Improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tank Ammunition Product Improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607131A / <i>Weapons and Munitions Product Improvement Programs</i> | Project (Number/Name) ER6 / <i>Direct Fire Technology</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Small Caliber Ammunition Product Improvements | 1 | 2018 | 4 | 2033 |
| Medium Caliber Ammunition Product Improvements | 1 | 2018 | 4 | 2033 |
| Tank Ammunition Product Improvements | 1 | 2018 | 4 | 2033 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| Appropriation/Budget Activity | R-1 Program Element (Number/Name) | | | | | | | | Cost To Complete | Total Cost | | |
|---|--|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|-------------------------|-------------------|-------|--------|
| 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | PE 0607136A / <i>Blackhawk Product Improvement Program</i> | | | | | | | | | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | | |
| Total Program Element | 0.000 | 14.599 | 0.000 | 1.507 | 0.000 | 1.507 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 16.106 |
| ES3: <i>Blackhawk Product Improvement Program</i> | - | 14.599 | - | 1.507 | - | 1.507 | - | - | - | - | 0.000 | 16.106 |

A. Mission Description and Budget Item Justification

UH-60V:

The H-60L Digital Blackhawk, now designated as UH-60V, is designed to update the existing H-60L analog architecture to a digital infrastructure enabling the upgraded aircraft to have a similar Pilot-Vehicle Interface (PVI) to the H-60M. The program will address current capability gaps and meet operational requirements by employing an evolutionary acquisition approach to leverage mature technologies that have been successfully integrated on other military aircraft. The program will reduce obsolescence and increase commonality and interoperability by installing a digital cockpit, bussing and upgrading the communication/identification suite, improving navigation guidance, and integrating Aircraft Survivability Equipment (ASE), digital moving map, and Joint Variable Message Format (JVMF) messaging. Continuing funding will provide hardware and software development, training material development, as well as developmental and operational testing.

MEDEVAC (Medical Evacuation):

Independent of the UH-60V Program of Record and Acquisition Program Baseline (APB), incremental RDT&E funding was utilized to support integration of a MEDEVAC capability on UH-60V in FY 2019-2022 and planned in FY 2024 for Follow-On Test and Evaluation (FOT&E). In accordance with AR 40-60, Medical Materiel Acquisition Policy, the Army's Aeromedical Evacuation capability is funded by two portfolio managers, Program Executive Office for Aviation (PEOAVN) and the Medical Research Development Command, (MRDC). PEOAVN is responsible for the integration of MEDEVAC Mission Equipment Package (MEP) on the UH-60V. MRDC is responsible for recurring costs to procure kits and resource the installation of MEP kits on UH-60V MEDEVAC helicopters.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 14.773 | 0.000 | 0.000 | - | 0.000 |
| Current President's Budget | 14.599 | 0.000 | 1.507 | - | 1.507 |
| Total Adjustments | -0.174 | 0.000 | 1.507 | - | 1.507 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.174 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 1.507 | - | 1.507 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|--|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i> |
|---|--|

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: ES3: *Blackhawk Product Improvement Program*

Congressional Add: *Blade Improvement Blackhawk*

Congressional Add Subtotals for Project: ES3

Congressional Add Totals for all Projects

| | FY 2022 | FY 2023 |
|--|---------|---------|
| | 10.000 | - |
| Congressional Add Subtotals for Project: ES3 | 10.000 | - |
| Congressional Add Totals for all Projects | 10.000 | - |

Change Summary Explanation

\$1.507M in FY24 will be required for a Full Operational Test and Evaluation (FOT&E) in order to evaluate the UH-60V MEDEVAC effectiveness, suitability, and survivability.

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i> | | | | Project (Number/Name) ES3 / <i>Blackhawk Product Improvement Program</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| ES3: <i>Blackhawk Product Improvement Program</i> | - | 14.599 | - | 1.507 | - | 1.507 | - | - | - | - | 0.000 | 16.106 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

UH-60V:

The H-60L Digital Blackhawk, now designated as UH-60V, is designed to update the existing H-60L analog architecture to a digital infrastructure enabling the upgraded aircraft to have a similar Pilot-Vehicle Interface (PVI) to the H-60M. The program will address current capability gaps and meet operational requirements by employing an evolutionary acquisition approach to leverage mature technologies that have been successfully integrated on other military aircraft. The program will reduce obsolescence and increase commonality and interoperability by installing a digital cockpit, bussing and upgrading the communication/identification suite, improving navigation guidance, and integrating Aircraft Survivability Equipment (ASE), digital moving map, and Joint Variable Message Format (JVMF) messaging. Continuing funding will provide hardware and software development, training material development, as well as developmental and operational testing.

MEDEVAC:

Independent of the UH-60V Program of Record and Acquisition Program Baseline (APB), incremental RDT&E funding was utilized to support integration of a MEDEVAC capability on UH-60V in FY 2019-2022 and planned in FY 2024 for Follow-On Test and Evaluation (FOT&E). In accordance with AR 40-60, Medical Materiel Acquisition Policy, the Army's Aeromedical Evacuation capability is funded by two portfolio managers, Program Executive Office for Aviation (PEOAVN) and the Medical Research Development Command, (MRDC). PEOAVN is responsible for the integration of MEDEVAC Mission Equipment Package (MEP) on the UH-60V. MRDC is responsible for recurring costs to procure kits and resource the installation of MEP kits on UH-60V MEDEVAC helicopters.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: MEDEVAC MEP Integration Product Development | 2.886 | - | - |
| Description: MEDEVAC MEP Integration Product Development. | | | |
| Title: MEDEVAC MEP Integration Support | 0.388 | - | - |
| Description: Support the HW and SW Design Activities with Airworthiness and Technical data division support. | | | |
| Title: MEDEVAC MEP Management Services | 0.658 | - | - |
| Description: Management Services includes all activities related to Government/Contractor Systems Engineering / Program Management (SEPM) to include the cost of Government and Contractor personnel supporting the H-60V MEDEVAC MEP Integration Program. | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i> | Project (Number/Name) ES3 / <i>Blackhawk Product Improvement Program</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>Title: MEDEVAC Test & Evaluation</p> <p>Description: The Utility Helicopter Project Office (UHPO) is responsible for day-to-day test management activities to include the execution of all developmental tests for the UH-60V MEDEVAC program. As part of this responsibility, UHPO manages the Test and Evaluation Working Group with a UH-60V MEDEVAC Test lead. He/she ensures the test agencies are coordinated, test plans are created, instrumentation is developed and installed, and airworthiness approvals are obtained. He/she tracks status of the testing throughout the program, assists in resolving issues, and coordinates approval of the test data and test reports. For this effort, the UHPO will manage system-level testing necessary to receive a fielding Airworthiness Release (AWR), including Electromagnetic Compatibility (EMC), Noise Floor, Electromagnetic Vulnerability (EMV), and ground system checkouts and flight testing of the MEDEVAC MEP.</p> <p>FY 2024 Plans: FOT&E is required to evaluate the UH-60V MEDEVAC effectiveness, suitability, and survivability.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: \$1.507M will be utilized in FY24 for FOT&E.</p> | 0.667 | - | 1.507 |
| Accomplishments/Planned Programs Subtotals | 4.599 | - | 1.507 |

| | FY 2022 | FY 2023 |
|--|----------------|----------------|
| <p>Congressional Add: Blade Improvement Blackhawk</p> <p>FY 2022 Accomplishments: Congressional add in FY22; contract award in Q3 FY23 to conduct development and qualification of blade improvements.</p> | 10.000 | - |
| Congressional Adds Subtotals | 10.000 | - |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • A05009: <i>UH-60 Black Hawk L and V Models</i> | 166.205 | 178.658 | 153.196 | - | 153.196 | 157.352 | 202.776 | 202.836 | 202.422 | 0.000 | 1,263.445 |
| • Q13015: <i>MEDICAL EVACUATION</i> | 12.314 | 32.164 | 7.618 | - | 7.618 | 8.774 | 6.201 | 6.127 | 7.893 | 0.000 | 81.091 |

Remarks
Q13015000 MEDICAL EVACUATION provides procurement funding for MEDEVAC MEP capability on UH-60 helicopters. Per requirements, starting in FY 2022, Q13015000 will resource procurement of MEDEVAC MEP kits and installations at a rate of 15 aircraft per year through FY 2034, which is the estimated year for the

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i> | Project (Number/Name) ES3 / <i>Blackhawk Product Improvement Program</i> |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|--|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| Army's Acquisition Objective (AAO) of 200 UH-60V MEDEVAC is reached. Figures shown above reflect the full FL8D/Q13015000/OPA/MEDICAL EVACUATION funding line, which includes the production kits and MEP installation costs at Corpus Christy Army Depot (CCAD) as well as other non-MEDEVAC funding requirements. UH-60V MEDEVAC MEP Q13015000 OPA requirements are \$6.4 million in FY 2022, \$7.1 million in FY 2023, \$7.8 million in FY 2024, \$8.1 million FY 2025 and \$8.6 million FY2026. Total MEDEVAC MEP requirement in Q1301500 through FY 2034 is \$88.1M. | | | | | | | | | | | |

D. Acquisition Strategy

The UH-60V program plans to leverage various test agencies, to design, integrate and build three production representative aircraft. The Government owned Government Operated (GOGO) facility uses a cost-plus contract vehicle and conducted full and open competition for the selection of the avionics solution provider.

Independent of the UH-60V Program of Record and Acquisition Program Baseline (APB), the MEDEVAC MEP program plans to utilize the U. S. Army Development Command (DEVCOM) Aviation and Missile Center (AVMC) and Prototype Integration Facility (PIF) to design and integrate MEDEVAC capability into the UH-60V. By leveraging the same GOGO facility utilized by the UH-60V program, efficient design, software development, integration, and testing will occur by eliminating redundant tasks and employing experienced government resources already in possession of pertinent UH-60V technical data required to support the MEDEVAC MEP nonrecurring engineering (NRE) effort. Prototype, validation, and verification of technical publications, as well as airworthiness testing, will be accomplished following completion of the UH-60V Initial Operation Test and Evaluation (IOT&E), at which time one UH-60V Engineering Development Model (EDM) and two Low-Rate Initial Production (LRIP) aircraft will be allocated to the MEDEVAC MEP program. Following completion of MEDEVAC MEP NRE, technical products will feed production and fielding contracts, which will be resourced by the U.S. Army Medical Department, AMEDD. Procurement funding is programmed on Q13015000 MEDICAL EVACUATION.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | | |
|--|------------------------|---|-------------|---|------------|---------|------------|---|------------|-------------|------------|------------------|------------------|------------|--------------------------|--|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | | |
| 2040 / 7 | | | | PE 0607136A / Blackhawk Product Improvement Program | | | | ES3 / Blackhawk Product Improvement Program | | | | | | | | |
| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| MEDEVAC MEP Management Services | TBD | TBD : TBD | - | 0.658 | Apr 2022 | - | | - | | - | | - | 0.000 | 0.658 | - | |
| Subtotal | | | - | 0.658 | | - | | - | | - | | - | 0.000 | 0.658 | N/A | |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| MEDEVAC MEP Product Development and Integration | C/CPFF | DEVCOM AvMC, PIF : Redstone Arsenal AL | 20.356 | 2.886 | Apr 2022 | - | | - | | - | | - | 0.000 | 23.242 | - | |
| Blade Improvement | Various | 96th Test Wing : Eglin AFB, Florida | - | 10.000 | | - | | - | | - | | - | 0.000 | 10.000 | - | |
| Subtotal | | | 20.356 | 12.886 | | - | | - | | - | | - | 0.000 | 33.242 | N/A | |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| MEDEVAC MEP Integration Support | MIPR | Various : Redstone Arsenal AL | 1.296 | 0.388 | Oct 2021 | - | | - | | - | | - | 0.000 | 1.684 | - | |
| Subtotal | | | 1.296 | 0.388 | | - | | - | | - | | - | 0.000 | 1.684 | N/A | |
| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| MEDEVAC Test and Evaluation | MIPR | Redstone Test Center : Redstone Arsenal, AL | 0.747 | 0.667 | Oct 2021 | - | | 1.507 | Dec 2023 | - | | 1.507 | 0.000 | 2.921 | - | |
| Subtotal | | | 0.747 | 0.667 | | - | | 1.507 | | - | | 1.507 | 0.000 | 2.921 | N/A | |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i> | Project (Number/Name) ES3 / <i>Blackhawk Product Improvement Program</i> |
|--|--|--|

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--------------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |

Remarks
Government Support

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | 22.399 | 14.599 | - | 1.507 | - | 1.507 | 0.000 | 38.505 | N/A |

Remarks

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|--|--|--|
| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i> | Project (Number/Name) ES3 / <i>Blackhawk Product Improvement Program</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|---|---|---|---|---|---|---|---|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| UH-60V Test and Evaluation (RDTE) | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | |
| | Test and Evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MEDEVAC MEP Integration Management Services (RDTE) | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | |
| | MEDEVAC MEP Integration Management Services | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MEDEVAC MEP Product Development and Integration (RDTE) | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | |
| | MEDEVAC MEP Product Development and Integration | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MEDEVAC MEP Integration Support (RDTE) | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | |
| | MEDEVAC MEP Integration Support | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MEDEVAC MEP Integration Test and Evaluation (RDTE) | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | |
| | MEDEVAC MEP Integration Test and Evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Blade Improvement Blackhawk (RDTE) | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | |
| | | | | | Blade Improvement Blackhawk (Product Development) | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607136A / <i>Blackhawk Product Improvement Program</i> | Project (Number/Name) ES3 / <i>Blackhawk Product Improvement Program</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| UH-60V Development (Research, Development, Test, and Evaluation (RDTE)) | 4 | 2014 | 4 | 2020 |
| UH-60V Management Services (RDTE) | 1 | 2014 | 4 | 2020 |
| UH-60V Support (RDTE) | 1 | 2014 | 4 | 2021 |
| UH-60V Test and Evaluation (RDTE) | 4 | 2015 | 4 | 2022 |
| MEDEVAC MEP Integration Management Services (RDTE) | 1 | 2019 | 4 | 2023 |
| MEDEVAC MEP Product Development and Integration (RDTE) | 1 | 2019 | 4 | 2023 |
| MEDEVAC MEP Integration Support (RDTE) | 4 | 2019 | 4 | 2023 |
| MEDEVAC MEP Integration Test and Evaluation (RDTE) | 2 | 2021 | 4 | 2024 |
| Satellite Communications Integration Development | 4 | 2020 | 4 | 2021 |
| Blade Improvement Blackhawk (RDTE) | 3 | 2023 | 3 | 2024 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|--|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i> |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 65.960 | 67.513 | 9.265 | - | 9.265 | 4.929 | 12.894 | 8.943 | 9.043 | Continuing | Continuing |
| ES4: <i>Chinook Product Improvement Program</i> | - | 65.960 | 67.513 | 9.265 | - | 9.265 | 4.929 | 12.894 | 8.943 | 9.043 | Continuing | Continuing |

Program MDAP/MAIS Code: 577

A. Mission Description and Budget Item Justification

Program Element (PE) 0607137A Chinook Product Improvement Program is critical to achieving heavy lift for the Army of 2030 Operational capability. With an increased payload and operational reach, the CH-47F Block II is the only platform that can lift the Joint Light Tactical Vehicle (JLTV), M777 and medium girder bridge to enable Army of 2030 Forces to Compete, Penetrate, Disintegrate, and Exploit at operationally relevant distances.

The CH-47F Block II acquisition program upgrades existing CH-47F aircraft and procures common hardware that exists between the CH-47F and MH-47G aircraft. The CH-47F Block II program reduces O&S costs and provides additional capability to the field with greater reach, increased payload capability and an increase in maximum gross weight to 54,000 pounds. CH-47F Block II upgrades include a strengthened airframe, improvements to rotor, fuel, and electrical systems, which will improve safety and reliability for the aircraft. The program updates the Common Avionics Architecture System (CAAS) and Digital Advanced Flight Control System (DAFCS) software packages of the aircraft and incorporates other avionics changes introduced into the final CH-47F production lots. Along with providing significantly increased capability to the field, the program includes provisions for anticipated future upgrades as well as weight and cost savings initiatives to ensure the Army has a platform with the flexibility and performance needed to meet the needs of Army of 2030 Operations.

The Cargo Project Management Office awarded the CH-47F Block II Engineering and Manufacturing Development (EMD) contract in July 2017. The EMD phase produced three production representative test articles to support an acquisition decision. This phase includes contractor and government led ground and flight system level qualification testing, which requires Electromagnetic Environmental Effects (E3), operation assessments, and aircraft subsystem Live-Fire Test and Evaluation (LFTE). On 27 September 2021, the Army provided direction to remove the Advanced Chinook Rotor Blade (ACRB) from the CH-47F Block II system configuration, and replace them with the currently fielded Fiberglass Rotor Blades (FRB) for the duration of the EMD phase.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|--|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i> |
|---|--|

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 67.872 | 52.513 | 9.461 | - | 9.461 |
| Current President's Budget | 65.960 | 67.513 | 9.265 | - | 9.265 |
| Total Adjustments | -1.912 | 15.000 | -0.196 | - | -0.196 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | 15.000 | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -1.912 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -0.196 | - | -0.196 |

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: ES4: *Chinook Product Improvement Program*

Congressional Add: *Program increase - Lightweight Ballistic Protection System*

Congressional Add: *Program increase - CH-47 Engine Enhancement*

| | FY 2022 | FY 2023 |
|--|----------------|----------------|
| | 8.000 | - |
| | 7.500 | 15.000 |
| Congressional Add Subtotals for Project: ES4 | 15.500 | 15.000 |
| Congressional Add Totals for all Projects | 15.500 | 15.000 |

Change Summary Explanation

Decreased funding to support higher Army priorities.

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i> | | | | Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| ES4: <i>Chinook Product Improvement Program</i> | - | 65.960 | 67.513 | 9.265 | - | 9.265 | 4.929 | 12.894 | 8.943 | 9.043 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Program Element (PE) 0607137A Chinook Product Improvement Program is critical to achieving heavy lift for the Army of 2030 Operational capability. With an increased payload and operational reach, the CH-47F Block II is the only platform that can lift the Joint Light Tactical Vehicle (JLTV), M777 and medium girder bridge to enable Army of 2030 Forces to Compete, Penetrate, Disintegrate, and Exploit at operationally relevant distances.

The CH-47F Block II acquisition program upgrades existing CH-47F aircraft and procures common hardware that exists between the CH-47F and MH-47G aircraft. The CH-47F Block II program reduces O&S costs and provides additional capability to the field with greater reach, increased payload capability and an increase in maximum gross weight to 54,000 pounds. CH-47F Block II upgrades include a strengthened airframe, improvements to rotor, fuel, and electrical systems, which will improve safety and reliability for the aircraft. The program updates the Common Avionics Architecture System (CAAS) and Digital Advanced Flight Control System (DAFCS) software packages of the aircraft and incorporates other avionics changes introduced into the final CH-47F production lots. Along with providing significantly increased capability to the field, the program includes provisions for anticipated future upgrades as well as weight and cost savings initiatives to ensure the Army has a platform with the flexibility and performance needed to meet the needs of Army of 2030 Operations.

The Cargo Project Management Office awarded the CH-47F Block II Engineering and Manufacturing Development (EMD) contract in July 2017. The EMD phase produced three production representative test articles to support an acquisition decision. This phase includes contractor and government led ground and flight system level qualification testing, which requires Electromagnetic Environmental Effects (E3), operation assessments, and aircraft subsystem Live-Fire Test and Evaluation (LFTE). On 27 September 2021, the Army provided direction to remove the Advanced Chinook Rotor Blade (ACRB) from the CH-47F Block II system configuration, and replace them with the currently fielded Fiberglass Rotor Blades (FRB) for the duration of the EMD phase.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: CH-47F Block II Engineering and Manufacturing Development (EMD) | 18.908 | 1.526 | - |
| Description: Conduct and support aircraft development, complete assembly and deliver three EMD test articles to include airframe components, Improved Drive Train (IDT), Improved Rotor System (IRS), light weight fuel system, electrical components and the currently fielded FRB. Complete fabrication, assembly, and initial functional checks of the Ground Test Vehicle (GTV) and remote control system (RCS); conduct GTV test operations, functional testing of the CH-47F Block II systems, and Test Readiness Review (TRR) for EMD ground and flight testing. Release EMD flight test software. Perform contractor led system level ground and flight testing. Deliver documentation that demonstrates requirements verification and production configuration | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i> | Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>baseline. Continue Integrated Logistics Support (ILS) and Integrated Contractor Supply (ICS) support for initial flight test activities. Shut down all ACRB efforts and terminate the associated contracts.</p> <p>FY 2023 Plans: Continue development of EMD flight test analysis and reporting deliverables in support of System Verification Review (SVR), system qualification, and an Army production decision.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The decrease of \$1.526 in FY23 to \$0 in FY24 due to the ramping down of CH-47F Block II EMD deliverables and qualification activities to support an Army production decision.</p> | | | | |
| <p>Title: Matrix and Contractor Support</p> <p>Description: This funding provides support costs for various government agencies, contractor support and matrix organizations supporting the Block II Engineering and Manufacturing Development (EMD) program with systems engineering, test support, airworthiness certification, project management, general engineering, logistics and business support.</p> <p>FY 2023 Plans: Continues funding support costs for various government agencies, contractor support, and other matrix organizations supporting CH-47F Block II EMD program.</p> <p>FY 2024 Plans: Continue funding for various government agencies, contractor support, and other matrix organizations in support of CH-47F Block II EMD activities, design, system engineering, fabrication, and Integrated Logistics Support (ILS) in support of production- aircraft configuration, corrective hardware and software actions.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The decrease of \$5.584 supports the ramp down of the system verification effort in support of the EMD phase.</p> | | 6.282 | 6.600 | 1.016 |
| <p>Title: Testing and Evaluation</p> <p>Description: This effort supports component and system level testing to qualify design improvements in the airframe, fuel system, avionics, drive train, and rotor subsystem. Block II improvements are validated through component endurance, testing of IDT, IRS, Live Fire Test and Evaluation (LFTE), Electromagnetic Environmental Effects (E3), and future test activities.</p> <p>FY 2023 Plans: Continues system level testing on the CH-47 Block II FRB configuration to support system qualification and assessment of mitigations implemented to address technical challenges discovered during previous EMD phase testing events. Conduct</p> | | 8.084 | 28.346 | 7.249 |

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|--|--|--|----------------|----------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i> | Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>Common Avionics Architecture System (CAAS) and Digital Advanced Flight Control System (DAFCS) software testing, in both laboratory and flight test environments, to support government acceptance of production aircraft. Plan for future developmental, operational, and cyber test activities. Conduct CH-47F Block II Operational Assessment and satisfy new program requirement to conduct Live Fire, Phase III testing of the Fiberglass Rotor Blades (FRB).</p> <p>FY 2024 Plans: Continue engineering support and mitigations for technical challenges discovered during EMD phase test events. Incorporate mitigations and improvements onto the production aircraft. Continue system level validation and verification of production aircraft configuration in preparation of future operational testing. Complete testing of DAFCS software to provide improved system handling qualities in support of operational test and fielding. Testing includes hardware and software modifications to the software integration laboratories (SIL) for software testing of production aircraft configuration.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The decrease of \$21.097 is due to the ramp down activities associated with the EMD phase such as, Live Fire and Ballistics Testing and Analysis, GTV support, and Flight Control Computer (FCC) testing.</p> | | | | |
| <p>Title: System Support</p> <p>Description: Conduct design, system engineering, fabrication, and ILS in support of production aircraft configuration, corrective hardware and software actions that are required to address technical challenges identified in the EMD phase. Conduct requirements update and verification efforts resulting from CH-47F Block II system configuration change from ACRB to FRB. Support test efforts to improve production aircraft operational availability and reduce maintenance costs. Conduct modifications of production aircraft and other test assets to support component and system level testing events. Implement corrective hardware and software actions that are required to address technical challenges identified during testing of the production aircraft. Perform system level verification and validation of production aircraft configuration in preparation for future operational testing. Deliver documentation in support of a material release that enables system fielding.</p> <p>FY 2023 Plans: Continue the requirement and verification updates resulting from CH-47F Block II system configuration change from ACRB to FRB. Continue engineering support and implementation of mitigations for technical challenges discovered during EMD phase testing events. Initiate system level verification and validation of production aircraft configuration in preparation for future operational testing. Complete hardware and software modifications to include software integration laboratories (SIL) in order to support production-aircraft configuration software testing. Pursue incorporation of Modular Open Systems Architecture (MOSA) into aircraft systems.</p> <p>FY 2024 Plans:</p> | | 17.186 | 14.124 | 1.000 |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i> | Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i> |
|--|--|--|

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| Continue the qualification of Government Furnished Equipment in support of production aircraft. This includes updates to the Aviation Mission Planning Systems to support SIL testing, developmental flight test activities, and pre-Initial Operational Test and Evaluation (IOT&E) activities. Additionally, a tool to support the previously mentioned activities is the Cargo Engineering Analysis Cockpit (CH-EAC), where the CH-EAC provides a virtual capability to perform Crew Station Working Groups (CSWGs). The CSWGs are conducted by actual pilot Subject Matter Experts (SMEs) in the field and the SMEs are brought into the CH-EAC facility to help evaluate software and avionics changes and how that impacts pilot workload. FY 2023 to FY 2024 Increase/Decrease Statement: The decrease of \$13.124 is due to completion of activities in support of production verification of C&A, Embedded Flight Performance Model (EPPM) updates, and Flight scene update. | | | |
| Title: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) Transfer Description: Funding transferred in accordance with Title 15 USC §638 FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638 FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638 | - | 1.917 | - |
| Accomplishments/Planned Programs Subtotals | 50.460 | 52.513 | 9.265 |

| | FY 2022 | FY 2023 |
|--|---------|---------|
| Congressional Add: Program increase - Lightweight Ballistic Protection System FY 2022 Accomplishments: Congressional increase for Lightweight Ballistics Protection System | 8.000 | - |
| Congressional Add: Program increase - CH-47 Engine Enhancement FY 2022 Accomplishments: Congressional increase for CH-47 Engine Enhancement. FY 2023 Plans: Congressional increase for CH-47 Engine Enhancement | 7.500 | 15.000 |
| Congressional Adds Subtotals | 15.500 | 15.000 |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|----------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| • A05105: CH-47 SLEP | 333.677 | 387.898 | 221.423 | - | 221.423 | 234.008 | 224.396 | 176.014 | 168.744 | Continuing | Continuing |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i> | Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i> |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|

Remarks

FY 2020 A05008 OCO is for Army Common MH-47G New Build War Replacement Aircraft Block II procurement.
 FY 2021 A05008 OCO is for CH-47F New Build War Replacement Aircraft Block I procurement.
 FY 2020 A05105 All Funding is for Army Common MH-47G RENEW Aircraft Block II procurement.
 FY 2021 A05105 Funding is for 6 Army Common MH-47G RENEW Aircraft Block II procurement.
 FY 2021 A05105 Funding is for 4 CH-47F RENEW Aircraft Block II procurement.
 FY 2022 A05105 Funding is for 6 Army Common MH-47G RENEW Aircraft Block II procurement.
 FY 2022 A05105 Funding is for 2 CH-47F RENEW Aircraft Block II procurement.
 FY 2023 A05105 Funding is for 6 Army Common MH-47G RENEW Aircraft Block II procurement.
 FY 2023 A05105 Funding is for 3 CH-47F RENEW Aircraft Block II procurement.

D. Acquisition Strategy

Inducted CH-47F Block I aircraft receive consolidated separate engineering change proposals for a single CH-47F Block II upgrade, which provides an increased maximum gross weight of 54,000 pounds. The CH-47F Block II program provides additional benefits to increase commonality and interoperability between the two platforms, improve design life, lower maintenance cost, enhance reliability, safety, airworthiness, and cybersecurity. The CH-47F Block II program restores payload lost through mission equipment package (MEP) growth and enhances flight control systems, while providing the most effective procurement alternative to maintain heavy lift capability and reduce Operation and Support (O&S) costs.

Quantity of RDT&E Articles:

FY 2017 - Awarded: 1 - Ground Test Vehicle (GTV), 2 - CH-47F Block II Prototypes

FY 2019 - Awarded: 1 - CH-47F Block II Prototype

FY 2019 - Delivered: 1 - GTV, 2 - CH-47F Block II Prototypes

FY 2020 - Delivered: 1 - CH-47F Block II Prototype

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|---|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607137A / Chinook Product Improvement Program | Project (Number/Name) ES4 / Chinook Product Improvement Program |
|--|---|---|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| SBIR/STTR Transfer | TBD | To Be Determined : To Be Determined | - | - | | 1.917 | Sep 2023 | - | | - | | - | 0.000 | 1.917 | - |
| Subtotal | | | - | - | | 1.917 | | - | | - | | - | 0.000 | 1.917 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Engineering and Manufacturing Development (EMD) | SS/CPIF | Boeing Ridley : Park, PA | 350.360 | 18.908 | Nov 2021 | 1.526 | Nov 2022 | - | | - | | - | 0.000 | 370.794 | - |
| System Support | TBD | To Be Determined : To Be Determined | - | 17.186 | Mar 2022 | 14.124 | Jun 2023 | 1.000 | May 2024 | - | | 1.000 | 0.000 | 32.310 | - |
| Congressional Add Program Increase CH-47 Engine Enhancement | TBD | To Be Determined : To Be Determined | - | 7.500 | Aug 2022 | 15.000 | Aug 2023 | - | | - | | - | 0.000 | 22.500 | - |
| Congressional Add Program Increase Block II Lightweight Improvements | TBD | To Be Determined : To Be Determined | 6.500 | 8.000 | Aug 2022 | - | | - | | - | | - | 0.000 | 14.500 | - |
| Subtotal | | | 356.860 | 51.594 | | 30.650 | | 1.000 | | - | | 1.000 | 0.000 | 440.104 | N/A |

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Program Support | Various | Various Government and contractor : RSA & Huntsville, AL, Aberdeen Proving Ground MD, | 34.211 | 6.282 | Oct 2021 | 6.600 | Oct 2022 | 1.016 | Oct 2023 | - | | 1.016 | Continuing | Continuing | Continuing |
| Subtotal | | | 34.211 | 6.282 | | 6.600 | | 1.016 | | - | | 1.016 | Continuing | Continuing | N/A |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607137A / <i>Chinook Product Improvement Program</i> | Project (Number/Name) ES4 / <i>Chinook Product Improvement Program</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Improved Drive Train (IDT) | 3 | 2014 | 4 | 2021 |
| Transportable Flight Proficiency Simulator (TFPS) | 2 | 2018 | 4 | 2020 |
| Milestone B | 3 | 2017 | 3 | 2017 |
| CH-47F Block II EMD | 4 | 2017 | 2 | 2024 |
| Program Support | 1 | 2017 | 4 | 2028 |
| Advanced Chinook Rotor Blade (ACRB) | 1 | 2011 | 4 | 2021 |
| Testing and Evaluation | 3 | 2015 | 2 | 2028 |
| System Support | 3 | 2022 | 4 | 2028 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607139A / <i>Improved Turbine Engine Program</i> |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 250.533 | 228.036 | 201.247 | - | 201.247 | 130.868 | 108.996 | 68.356 | 48.952 | Continuing | Continuing |
| ES6: <i>Improved Turbine Engine Program</i> | - | 250.533 | 228.036 | 201.247 | - | 201.247 | 130.868 | 108.996 | 68.356 | 48.952 | Continuing | Continuing |

Program MDAP/MAIS Code: 487

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the army Modernization Priorities in support of the Improved Turbine Engine Program (ITEP). ITEP develops, tests, qualifies, and integrates the next generation turboshaft engine on Future Attack Reconnaissance Aircraft (FARA), Black Hawk and Apache aircraft. The Improved Turbine Engine (ITE) replaces the existing T700 engine design originated in the 1970s and meets the operational requirement of 6,000 feet pressure altitude and 95 degrees (6K/95). The ITE will fit inside the existing engine bays of the Black Hawk and Apache Helicopters and provides a significant power enhancement of up to fifty percent (total of 3,000 class shaft horsepower) with increased fuel efficiency. Additional benefits include improved design life, enhanced reliability, lower maintenance cost and restored capability lost due to aircraft weight growth without an increase to the logistics footprint. The program consists of systems engineering and program management, detailed design engineering, design assurance, hardware manufacturing and testing, component and module level development and testing, system level testing and qualification, and platform integration and qualification.

FY 2022 funding initiated component level testing for Preliminary Flight Rating (PFR), continued physical airframe integration, continued Live Fire detailed test planning, completed Apache A-Kit Incremental Critical Design Review #2 (iCDR), completed Black Hawk A-Kit PDR, and initiated Black Hawk A-Kit CDR. FY 2023 funding continues engine testing to achieve Preliminary Flight Rating (PFR) in FY 2024, provides for completion of Black Hawk A-Kit CDR, completes Live Fire detailed test planning, and provides funding for Long Lead Hardware for Initial Operational Test and Evaluation (IOTE) engines. FY 2024 funding completes PFR testing, provides for the delivery of flight test engines to platforms, initiates UH-60M aircraft flight/qualification activities, initiates AH-64E instrumentation and ground testing, and initiates engine qualification. FY 2025 funding initiates Live Fire static engine tests, continues UH-60M aircraft flight/qualification testing, initiates AH-64E aircraft flight/qualification testing, and continues engine qualification. FY 2026 funding completes Live Fire static engine tests, initiates IOTE activities, completes engine qualification and UH-60M qualification, continues AH-64E aircraft flight/qualification testing. FY 2027 funding begins engine integration for the H-60V platform, initiates Live Fire dynamic engine test, completes AH-64E qualification and continues IOTE activities. FY 2028 funding continues H-60V integration, completes H-60V A-kit CDR, completes Live Fire dynamic engine tests, and completes IOTE.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607139A / <i>Improved Turbine Engine Program</i> |
|---|--|

| B. Program Change Summary (\$ in Millions) | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> |
|---|-----------------------|-----------------------|----------------------------|---------------------------|-----------------------------|
| Previous President's Budget | 260.024 | 228.036 | 205.191 | - | 205.191 |
| Current President's Budget | 250.533 | 228.036 | 201.247 | - | 201.247 |
| Total Adjustments | -9.491 | 0.000 | -3.944 | - | -3.944 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -9.491 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -3.944 | - | -3.944 |

Change Summary Explanation

Decreased funding to support higher Army priorities.

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607139A / Improved Turbine Engine Program | | | | Project (Number/Name) ES6 / Improved Turbine Engine Program | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| ES6: Improved Turbine Engine Program | - | 250.533 | 228.036 | 201.247 | - | 201.247 | 130.868 | 108.996 | 68.356 | 48.952 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the army Modernization Priorities in support of the Improved Turbine Engine Program (ITEP). ITEP develops, tests, qualifies, and integrates the next generation turboshaft engine on Future Attack Reconnaissance Aircraft (FARA), Black Hawk and Apache aircraft. The Improved Turbine Engine (ITE) replaces the existing T700 engine design originated in the 1970s and meets the operational requirement of 6,000 feet pressure altitude and 95 degrees (6K/95). The ITE will fit inside the existing engine bays of the Black Hawk and Apache Helicopters and provides a significant power enhancement of up to fifty percent (total of 3,000 class shaft horsepower) with increased fuel efficiency. Additional benefits include improved design life, enhanced reliability, lower maintenance cost and restored capability lost due to aircraft weight growth without an increase to the logistics footprint. The program consists of systems engineering and program management, detailed design engineering, design assurance, hardware manufacturing and testing, component and module level development and testing, system level testing and qualification, and platform integration and qualification.

FY 2022 funding initiated component level testing for Preliminary Flight Rating (PFR), continued physical airframe integration, continued Live Fire detailed test planning, completed Apache A-Kit Incremental Critical Design Review #2 (iCDR), completed Black Hawk A-Kit PDR, and initiated Black Hawk A-Kit CDR. FY 2023 funding continues engine testing to achieve Preliminary Flight Rating (PFR) in FY 2024, provides for completion of Black Hawk A-Kit CDR, completes Live Fire detailed test planning, and provides funding for Long Lead Hardware for Initial Operational Test and Evaluation (IOTE) engines. FY 2024 funding completes PFR testing, provides for the delivery of flight test engines to platforms, initiates UH-60M aircraft flight/qualification activities, initiates AH-64E instrumentation and ground testing, and initiates engine qualification. FY 2025 funding initiates Live Fire static engine tests, continues UH-60M aircraft flight/qualification testing, initiates AH-64E aircraft flight/qualification testing, and continues engine qualification. FY 2026 funding completes Live Fire static engine tests, initiates IOTE activities, completes engine qualification and UH-60M qualification, continues AH-64E aircraft flight/qualification testing. FY 2027 funding begins engine integration for the H-60V platform, initiates Live Fire dynamic engine test, completes AH-64E qualification and continues IOTE activities. FY 2028 funding continues H-60V integration, completes H-60V A-kit CDR, completes Live Fire dynamic engine tests, and completes IOTE.

B. Accomplishments/Planned Programs (\$ in Millions)

| | | | |
|--|----------------|----------------|----------------|
| | FY 2022 | FY 2023 | FY 2024 |
| Title: ITEP | 250.533 | 219.713 | 201.247 |
| Description: ITEP - a multi-platform turbine engine development required across existing Army aircraft to fill the capability gaps for Army Aviation Operations | | | |
| FY 2023 Plans: | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607139A / Improved Turbine Engine Program | Project (Number/Name) ES6 / Improved Turbine Engine Program |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>FY 2023 funding continues engine testing to achieve Preliminary Flight Rating (PFR) in FY 2024, provides for completion of Black Hawk A-Kit CDR, completion of Live Fire detailed test planning, and provides funding for Long Lead Hardware for Initial Operational Test and Evaluation (IOTE) engines.</p> <p>FY 2024 Plans: FY 2024 funding completes PFR testing, provides for the delivery of flight test engines to platforms, initiates UH-60M aircraft flight/qualification activities, initiates AH-64E instrumentation and ground testing, and initiation of engine qualification.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY2023 to FY2024 due to reduction in Engine OEM contract efforts as engine design and development nears completion.</p> | | | |
| <p>Title: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)</p> <p>Description: Funding transferred in accordance with Title 15 USC §638</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638</p> | - | 8.323 | - |
| Accomplishments/Planned Programs Subtotals | 250.533 | 228.036 | 201.247 |

C. Other Program Funding Summary (\$ in Millions)
N/A

Remarks
For FY 2014 and prior, all funding for ITEP was contained in Program Element (PE) 0203744A - Aircraft Modifications/Product Improvement Programs, Project 504. FY 2015 funding was initially moved to PE 0203744A, Project EB1. Prior to execution, FY 2015 and beyond funding was moved to to PE 0607139A, Project ES6.

D. Acquisition Strategy
Following a successful Milestone B decision, a cost-plus-incentive-fee contract was awarded to General Electric for EMD contractual effort in FY 2019.

ITEP Platform Integration Trade Studies Contracts were awarded to the Boeing Company and the Sikorsky Corporation in FY 2015. In FY 2019, two follow-on efforts were awarded to design and develop A-kits to integrate the ITE into both the Apache and Black Hawk platforms. Following a successful Apache A-Kit iCDR in FY 2021 and FY 2022, and Black Hawk A-Kit CDR in FY2023, the integration efforts will continue to include fabrication of the A-kits, flight test support, and pubs/provisioning.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607139A / <i>Improved Turbine Engine Program</i> | Project (Number/Name) ES6 / <i>Improved Turbine Engine Program</i> |

Upon completion of EMD, an LRIP contract will be awarded in FY 2026.

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|---|--|--|--|--|--|---|--|--|--|--|---|--|--|--|--|
| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | Date: March 2023 | | | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | | R-1 Program Element (Number/Name) PE 0607139A / Improved Turbine Engine Program | | | | | Project (Number/Name) ES6 / Improved Turbine Engine Program | | | | |

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ITEP SEPM - Organic | Allot | Program Management Office (PMO) Aviation Turbine Engines Project Office (ATE), Various : Redstone Arsenal, AL | 55.012 | 15.975 | Oct 2021 | 9.881 | Oct 2022 | 9.911 | Oct 2023 | - | | 9.911 | Continuing | Continuing | Continuing |
| ITEP SEPM - Contractor | C/IDIQ | Program Management Office (PMO) Aviation Turbine Engines Project Office (ATE), Various : Redstone Arsenal, AL | 21.365 | 3.878 | Oct 2021 | 3.975 | Oct 2022 | 4.217 | Oct 2023 | - | | 4.217 | Continuing | Continuing | Continuing |
| ITEP SEPM - OGA | MIPR | Program Management Office (PMO) Aviation Turbine Engines Project Office (ATE), Various : Redstone Arsenal, AL | 22.856 | 2.365 | Oct 2021 | 2.425 | Oct 2022 | 2.655 | Oct 2023 | - | | 2.655 | Continuing | Continuing | Continuing |
| SBIR/STTR Transfer | TBD | Army : TBD | - | - | | 8.323 | Sep 2023 | - | | - | | - | 0.000 | 8.323 | - |
| Subtotal | | | 99.233 | 22.218 | | 24.604 | | 16.783 | | - | | 16.783 | Continuing | Continuing | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
|--|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Engine OEM EMD Contract | C/CPIF | General Electric Company (GE) : Lynn, MA | 341.134 | 133.200 | Oct 2021 | 133.000 | Oct 2022 | 86.369 | Oct 2023 | - | | 86.369 | Continuing | Continuing | Continuing |
| Platform Integration and Qualification Contracts | SS/CPIF | The Boeing Company, The Sikorsky | 94.317 | 74.615 | Jan 2022 | 49.849 | Oct 2022 | 75.514 | Oct 2023 | - | | 75.514 | Continuing | Continuing | Continuing |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | |
|--|------------------------|---|-------------|---|------------|---------|------------|---------------------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | |
| 2040 / 7 | | | | PE 0607139A / Improved Turbine Engine Program | | | | ES6 / Improved Turbine Engine Program | | | | | | | |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| | | Corporation : Phoenix, AZ, Stratford, CT | | | | | | | | | | | | | |
| Subtotal | | | 435.451 | 207.815 | | 182.849 | | 161.883 | | - | | 161.883 | Continuing | Continuing | N/A |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| ITEP Engineering Support - Organic | Allot | Program Management Office (PMO) Aviation Turbine Engines Project Office (ATE), Various : Redstone Arsenal, AL | 1.017 | 0.186 | Oct 2021 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| ITEP Engineering Support - Contractor | C/IDIQ | Program Management Office (PMO) Aviation Turbine Engines Project Office (ATE), Various : Redstone Arsenal, AL | 13.509 | 2.894 | Oct 2021 | 2.966 | Oct 2022 | 3.029 | Oct 2023 | - | | 3.029 | Continuing | Continuing | Continuing |
| ITEP Engineering Support - OGA | MIPR | Program Management Office (PMO) Aviation Turbine Engines Project Office (ATE), Various : Redstone Arsenal, AL | 40.756 | 8.203 | Oct 2021 | 8.396 | Oct 2022 | 8.502 | Oct 2023 | - | | 8.502 | Continuing | Continuing | Continuing |
| Platform Integration Support | MIPR | Program Management Office (PMO) Apache and Black Hawk Project | 9.720 | 6.075 | Oct 2021 | 6.196 | Oct 2022 | 6.304 | Oct 2023 | - | | 6.304 | Continuing | Continuing | Continuing |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | |
|---|------------------------|---|-------------|---|------------|---------|------------|---------------------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | |
| 2040 / 7 | | | | PE 0607139A / Improved Turbine Engine Program | | | | ES6 / Improved Turbine Engine Program | | | | | | | |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| | | Offices : Redstone Arsenal, AL | | | | | | | | | | | | | |
| Subtotal | | | 65.002 | 17.358 | | 17.558 | | 17.835 | | - | | 17.835 | Continuing | Continuing | N/A |
| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Government Test Planning/Flight Test Support and Analysis | SS/TBD | Program Management Office (PMO) Aviation Turbine Engines Project Office (ATE), Various : Redstone Arsenal, AL | 6.911 | 3.142 | Oct 2021 | 3.025 | Oct 2022 | 4.746 | Oct 2023 | - | | 4.746 | Continuing | Continuing | Continuing |
| Subtotal | | | 6.911 | 3.142 | | 3.025 | | 4.746 | | - | | 4.746 | Continuing | Continuing | N/A |
| Project Cost Totals | | | 606.597 | 250.533 | | 228.036 | | 201.247 | | - | | 201.247 | Continuing | Continuing | N/A |
| Remarks | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607139A / Improved Turbine Engine Program | Project (Number/Name) ES6 / Improved Turbine Engine Program | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | | |
|---|------------|---|---|---|---------|------------|---|---|---------|------------|---|---|---------|---|---|---|---------|------------|---|---|---------|---|---|---|---------|---|---|---|--|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | |
| ITEP Systems Engineering/Program Management | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Milestone C | [Redacted] | | | | | | | | | | | | | | | | ▲ 3 | [Redacted] | | | | | | | | | | | |
| Engineering & Manufacturing Development | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Air Vehicle Integration | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Testing | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| First Engine To Test (FETT) | [Redacted] | | | | ▲ 1 | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | |
| Preliminary Flight Rating | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Rate Initial Production (LRIP) | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Full Rate Production | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607139A / Improved Turbine Engine Program | Project (Number/Name) ES6 / Improved Turbine Engine Program |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| ITEP Systems Engineering/Program Management | 1 | 2015 | 4 | 2030 |
| Milestone C | 3 | 2026 | 3 | 2026 |
| Engineering & Manufacturing Development | 2 | 2019 | 3 | 2026 |
| Critical Design Review (CDR) | 4 | 2020 | 4 | 2020 |
| Air Vehicle Integration | 2 | 2019 | 4 | 2030 |
| Testing | 2 | 2019 | 3 | 2026 |
| First Engine To Test (FETT) | 3 | 2022 | 3 | 2022 |
| Preliminary Flight Rating | 3 | 2024 | 3 | 2024 |
| Low Rate Initial Production (LRIP) | 3 | 2026 | 3 | 2028 |
| Full Rate Production | 3 | 2028 | 4 | 2037 |
| IOC | 3 | 2029 | 3 | 2029 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | | | | | R-1 Program Element (Number/Name) PE 0607142A / Aviation Rocket System Product Improvement and Development | | | | | | | |
|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| Total Program Element | 0.000 | 8.831 | 11.312 | 3.014 | 0.000 | 3.014 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| EW9: Aviation Rocket System Product Improvement and Dev | - | 8.831 | 11.312 | 3.014 | - | 3.014 | - | - | - | - | Continuing | Continuing |

A. Mission Description and Budget Item Justification

The Aviation Rockets and Small Guided Munitions Product Improvement and Development line funds the development, integration and test of current and future munitions and launchers, and their interface to platforms. Additionally, it will fund a range of improvement initiatives to modernize the Hydra-70 2.75 inch rocket and launcher system. The current Hydra-70 2.75 inch rocket system requires performance improvements to comply with 1) US Code - Title 10, Chapter 141, Section 2389 "Ensuring Safety regarding Insensitive Munitions", 2) Department of Defense (DoD) Directive 5000.1, Chairman of the Joint Chiefs of Staff (CJCS) Instruction 3170.01C, Under Secretary of Defense for Acquisition, Technology, and Logistics (OUSD (AT&L)) Memorandum of January 26, 1999, "Exemption for Existing Inventory Items to Insensitive Munitions (IM) Requirements", 3) signed Initial Capability Document (ICD) for Army Aviation Weapons, Sub-Systems and Munitions (AAWSSM), 4) Air Launched Effects (ALE) Initial Capability Refinement Document (ICRD) dated 21 October 2019, 5) Future Attack Reconnaissance Aircraft Abbreviated Capabilities Development Document (FARA A-CDD) dated 15 August 2022, and 6) existing/emerging Headquarters, Department of the Army (HQDA) G-3/5/7 and U.S. Army Training and Doctrine Command (TRADOC) aviation weapon requirements for guided and unguided rocket and munition systems. Improvements to existing rocket systems and munitions will include design, qualification and integration of precision guidance capability, increased lethality, improved target suppression, increased standoff range, reduced minimum engagement range, improved pre-launch constraints and munitions communications/programmability, increased stowed kills, increased product reliability, improved hardness against unplanned stimuli, reduced Warfighter workload, and reduced environmental impact for both manned and unmanned applications.

The Fiscal Year (FY) 2024 dollars in the amount of \$3.014 million will be used for technical assessments, risk reduction efforts, technology maturation, demonstration, engineering design, engineering/manufacturing development, testing, integration, and document preparation to support current and future Army Aviation manned and unmanned platforms and munitions.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607142A / <i>Aviation Rocket System Product Improvement and Development</i> |
|---|---|

| B. Program Change Summary (\$ in Millions) | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> |
|---|-----------------------|-----------------------|----------------------------|---------------------------|-----------------------------|
| Previous President's Budget | 12.417 | 11.312 | 3.078 | - | 3.078 |
| Current President's Budget | 8.831 | 11.312 | 3.014 | - | 3.014 |
| Total Adjustments | -3.586 | 0.000 | -0.064 | - | -0.064 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -3.586 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -0.064 | - | -0.064 |

Change Summary Explanation

Decreased funding to support higher Army priorities.

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607142A / Aviation Rocket System Product Improvement and Development | | | | Project (Number/Name) EW9 / Aviation Rocket System Product Improvement and Dev | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| EW9: Aviation Rocket System Product Improvement and Dev | - | 8.831 | 11.312 | 3.014 | - | 3.014 | - | - | - | - | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Aviation Rockets and Small Guided Munitions Product Improvement and Development line funds the development, integration and test of current and future munitions and launchers, and their interface to platforms. Additionally, it will fund a range of improvement initiatives to modernize the Hydra-70 2.75 inch rocket and launcher system. The current Hydra-70 2.75 inch rocket system requires performance improvements to comply with 1) US Code - Title 10, Chapter 141, Section 2389 "Ensuring Safety regarding Insensitive Munitions", 2) Department of Defense (DoD) Directive 5000.1, Chairman of the Joint Chiefs of Staff (CJCS) Instruction 3170.01C, Under Secretary of Defense for Acquisition, Technology, and Logistics (OUSD (AT&L)) Memorandum of January 26, 1999, "Exemption for Existing Inventory Items to Insensitive Munitions (IM) Requirements", 3) signed Initial Capability Document (ICD) for Army Aviation Weapons, Sub-Systems and Munitions (AAWSSM), 4) Air Launched Effects (ALE) Initial Capability Refinement Document (ICRD) dated 21 October 2019, 5) Future Attack Reconnaissance Aircraft Abbreviated Capabilities Development Document (FARA A-CDD) dated 15 August 2022, and 6) existing/emerging Headquarters, Department of the Army (HQDA) G-3/5/7 and U.S. Army Training and Doctrine Command (TRADOC) aviation weapon requirements for guided and unguided rocket and munition systems. Improvements to existing rocket systems and munitions will include design, qualification and integration of precision guidance capability, increased lethality, improved target suppression, increased standoff range, reduced minimum engagement range, improved pre-launch constraints and munitions communications/programmability, increased stowed kills, increased product reliability, improved hardness against unplanned stimuli, reduced Warfighter workload, and reduced environmental impact for both manned and unmanned applications.

The Fiscal Year (FY) 2024 dollars in the amount of \$3.014 million will be used for technical assessments, risk reduction efforts, technology maturation, demonstration, engineering design, engineering/manufacturing development, testing, integration, and document preparation to support current and future Army Aviation manned and unmanned platforms and munitions.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Guided Air-to-Ground Rocket (AGR) variants (Advanced Precision Kill Weapon System (APKWS)) | 1.192 | 1.044 | 1.064 |
| Description: These funds will be used to optimize current and future air-to ground variant integration on the Apache and for activities required to obtain an Army Materiel Release. This effort will utilize in-house expertise and Other Government Agencies in order to complete activities, including design and build of all-up-round (AUR) containers and test assets, conduct of environmental qualification testing, performance of ground firings, update of aviation platform software, support of Apache weapon survey firings, technical support to platform integration and testing, and development and revision of training/maintenance materiel. | | | |
| FY 2023 Plans: | | | |

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|---|--|--|----------------|----------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607142A / Aviation Rocket System Product Improvement and Development | Project (Number/Name) EW9 / Aviation Rocket System Product Improvement and Dev | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>Continue characterization of performance changes/improvements of single software variant block upgrade of guided rockets and qualify for use on Army Aviation platforms.</p> <p>FY 2024 Plans: Complete characterization of performance changes/improvements of single variant block upgrade (SVBU) guided rockets and qualification for use on Army Aviation platforms will be conducted.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: No significant increase.</p> | | | | |
| <p>Title: Army Aviation Weapons</p> <p>Description: These funds will be used for fielded Army Aviation modular weapon systems and their interface to fielded launchers and platforms. These efforts will utilize in-house subject matter expertise, Other Government Agencies, defense industry capabilities, and Other Transactional Agreements to complete activities, including technical assessment, risk reduction efforts, technology maturation, demonstration, engineering design, engineering/manufacturing development, test, integration and document preparation for Army Aviation manned and unmanned platforms.</p> <p>FY 2023 Plans:</p> <ol style="list-style-type: none"> 1. Continue analysis, engineering design, and demonstration of propulsion, sensor, datalink and navigation technologies that will enable future munitions to meet requirements of the Army Aviation Weapons, Sub-Systems and Munitions Initial Capability Document and the Army Aviation Muniton Strategy. 2. Continue studies, assessments, risk reduction effort and documentation to determine feasibility of the adaptation of future guided and unguided munition technologies. 3. Proceed from launcher concept development to prototype development, integration, and testing phase with future and enduring munitions. <p>FY 2024 Plans:</p> <ol style="list-style-type: none"> 1. Continue analysis, engineering design, and demonstration of warhead, fuze, propulsion, sensor, datalink and navigation technologies that will enable future munitions to meet requirements of the Army Aviation Weapons, Sub-Systems and Munitions Initial Capability Document and the Army Aviation Muniton Strategy. 2. Continue modeling and simulation, studies, assessments, risk reduction effort and documentation to determine feasibility of the adaptation of future guided and unguided munition technologies. 3. Continue launcher concept development to prototype development, integration, and testing phase with future and enduring munitions. <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> | | 4.745 | 7.018 | 1.467 |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607142A / Aviation Rocket System Product Improvement and Development | Project (Number/Name) EW9 / Aviation Rocket System Product Improvement and Dev |
|--|--|--|

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Decrease due to completion of efforts for technology and concept maturation supporting Army Aviation Munition Strategy. | | | |
| <p>Title: Modular Effects Launcher (MEL)/Launcher Electronics Assembly (LEA)</p> <p>Description: These funds will be used to upgrade and enhance launcher components to support current and future munitions outlined in the Army Aviation Weapons, Sub-Systems and Munitions Initial Capability Document, dated 17 July 2018, the Air Launched Effects (ALE) Initial Capability Refinement Document (ICRD) dated 21 October 2019, and the Future Attack Reconnaissance Aircraft Abbreviated Capabilities Development Document (FARA A-CDD) dated 15 August 2022. This effort allows the Government to align technology-enabling solutions with the Army Aviation Weapons, Sub-Systems and Munitions Initial Capability Document, maturing technological developments of launcher component prototypes to mitigate launcher limitations. The launcher component efforts will define and provide the interfaces between aircraft and emerging munitions utilizing a nonproprietary, open systems architecture allowing easy compatibility when integrating onto aviation platforms. The inherent flexibility of an open architecture serves as a building block for future weapon systems.</p> <p>FY 2023 Plans:</p> <ol style="list-style-type: none"> 1. Complete launcher technologies architecture design, and structure concept development. 2. Complete technical assessments and concept studies to inform capabilities against evolving threats. <p>FY 2024 Plans:</p> <p>Integrate enduring munitions with the emerging launcher technology.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> <p>Decrease due to completion of launcher technology development.</p> | 2.894 | 2.837 | 0.483 |
| <p>Title: SBIR/STTR Transfer</p> <p>FY 2023 Plans:</p> <p>Funding transferred in accordance with Title 15 USC §638</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> <p>Funding transferred in accordance with Title 15 USC §638</p> | - | 0.413 | - |
| Accomplishments/Planned Programs Subtotals | | | |
| | 8.831 | 11.312 | 3.014 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • E37300: Rocket, Hydra 70, All Types | 117.536 | 171.697 | 87.293 | - | 87.293 | 71.429 | 93.758 | 74.619 | 74.619 | Continuing | Continuing |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607142A / Aviation Rocket System Product Improvement and Development | Project (Number/Name) EW9 / Aviation Rocket System Product Improvement and Dev |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|

Remarks

E37300 procures guided and unguided Hydra Rockets

D. Acquisition Strategy

The Acquisition Strategy utilizes in-house expertise, Other Government Agencies, defense industry capabilities, and when appropriate Other Transactional Agreements. The strategy allows the Government the ability to support urgent operational needs and unanticipated requirements, which require immediate and expert attention.

This strategy will allow the Government to maintain the relevance of the Hydra-70 all-up-round rocket, its variants, and Small Guided Munitions, and posture for emerging requirements and capabilities, while leveraging new authorities and progressing as many technologies as funding allows.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | |
|--|------------------------|--------------------------------|-------------|--|------------|---------|------------|--|------------|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | |
| 2040 / 7 | | | | PE 0607142A / Aviation Rocket System Product Improvement and Development | | | | EW9 / Aviation Rocket System Product Improvement and Dev | | | | | | | |
| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| System Engineering/Project Management | Various | Various : Performers | 10.781 | 2.499 | Nov 2021 | 1.562 | Nov 2022 | 0.464 | Nov 2023 | - | | 0.464 | Continuing | Continuing | - |
| SBIR/STTR Transfer | C/TBD | Various : Various | - | - | | 0.413 | Apr 2023 | - | | - | | - | Continuing | Continuing | - |
| Subtotal | | | 10.781 | 2.499 | | 1.975 | | 0.464 | | - | | 0.464 | Continuing | Continuing | N/A |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Advanced Precision Kill Weapon System (APKWS) | MIPR | CCDC : Redstone Arsenal, AL | 1.793 | 1.005 | Feb 2022 | 0.894 | Apr 2023 | 0.708 | Apr 2024 | - | | 0.708 | 0.000 | 4.400 | - |
| Army Aviation Weapons | MIPR | Various : Various Performers | 12.382 | 0.402 | Dec 2021 | 5.002 | Mar 2023 | 0.961 | Mar 2024 | - | | 0.961 | Continuing | Continuing | - |
| Modular Effects Launcher (MEL)/Launcher Electronics Assembly (LEA) | MIPR | CCDC : Redstone Arsenal, AL | 8.595 | 2.075 | Mar 2022 | 2.431 | Mar 2023 | 0.404 | Mar 2024 | - | | 0.404 | Continuing | Continuing | - |
| Subtotal | | | 22.770 | 3.482 | | 8.327 | | 2.073 | | - | | 2.073 | Continuing | Continuing | N/A |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Research Studies | MIPR | CCDC : Redstone Arsenal, AL | 2.076 | 2.850 | Jan 2022 | 1.010 | Apr 2023 | 0.477 | Jan 2024 | - | | 0.477 | Continuing | Continuing | - |
| Subtotal | | | 2.076 | 2.850 | | 1.010 | | 0.477 | | - | | 0.477 | Continuing | Continuing | N/A |
| Project Cost Totals | | | 35.627 | 8.831 | | 11.312 | | 3.014 | | - | | 3.014 | Continuing | Continuing | N/A |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607142A / Aviation Rocket System Product Improvement and Development | Project (Number/Name) EW9 / Aviation Rocket System Product Improvement and Dev |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| APKWS - AH-64E Fire Control Optimization | 3 | 2021 | 2 | 2022 |
| APKWS - SVBU Performance Characterization / Fire Control Optimization | 3 | 2021 | 3 | 2024 |
| Technology Analysis, Development, and Improvement in support of AAWSSM ICD | 2 | 2019 | 1 | 2025 |
| AAWSSM Munitions Technologies and Capabilities Studies | 1 | 2024 | 1 | 2024 |
| AAWSSM Launcher Risk Mitigation Demo | 3 | 2024 | 3 | 2024 |

Note
 APKWS: Advanced Precision Kill Weapon System
 AAWSSM ICD: Army Aviation Weapons, Sub-Systems and Munitions Initial Capability Document
 SVBU: Single Variant Block Upgrade

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607143A / <i>Unmanned Aircraft System Universal Products</i> |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 4.426 | 10.512 | 25.393 | - | 25.393 | 0.503 | 34.222 | 31.942 | 28.850 | Continuing | Continuing |
| EX1: <i>Unmanned Aircraft Systems Universal Products</i> | - | 4.426 | 10.512 | 25.393 | - | 25.393 | 0.503 | 34.222 | 31.942 | 28.850 | Continuing | Continuing |

A. Mission Description and Budget Item Justification

This funding line directly aligns to the Future Vertical Lift (FVL) portfolio. Scalable Control Interface (SCI) will be the primary means of Command and Control (C2) for Future Unmanned Aircraft Systems (FUAS), to include Air Launched Effects (ALE), Future Tactical UAS (FTUAS) and optionally manned rotary wing aircraft. Mission Command devices in both ground and airborne platforms (e.g. Future Attack and Reconnaissance Aircraft - FARA) will host SCI software serving as nodes on the Integrated Tactical Network or other Army-provided network to retrieve and provide data. SCI distributes UAS capabilities by greatly increasing the number of UAS control devices available to Soldiers, Commanders, and Battle Staff. SCI provides simultaneous employment of multiple aircraft/payloads from a single control node. SCI leverages a Modular Open System Approach (MOSA) to software in order to reduce time and cost to integrate new hardware and software in response to the dynamic future operating environment.

Deployment of SCI will include, but is not limited to, devices in the Mobile/Handheld Computing Environment (such as Nett Warrior), Mounted Computing Environment (such as MFoCS [Mounted Family of Computer Systems]), Command Post Computing Environment (such as TSI [Tactical Services Infrastructure]), and future Army rotary wing aircraft (FARA and Future Long Range Assault Aircraft - FLRAA). SCI will integrate decision aiding, autonomy, and artificial intelligence improvements as they technically mature, in order to support MDO and reduce cognitive workload.

Justification: Fiscal Year (FY) 2024 SCI (Universal Products) Base funding of \$25.393 million will continue the development, test, and integration of improved SCI capabilities as hosted on Mission Command and manned aircraft command and control devices in accordance with the SCI Abbreviated-Capabilities Development Document (A-CDD).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0607143A / Unmanned Aircraft System Universal Products |
|--|---|

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 4.594 | 0.512 | 0.514 | - | 0.514 |
| Current President's Budget | 4.426 | 10.512 | 25.393 | - | 25.393 |
| Total Adjustments | -0.168 | 10.000 | 24.879 | - | 24.879 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | 10.000 | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.168 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 24.879 | - | 24.879 |

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: EX1: Unmanned Aircraft Systems Universal Products

Congressional Add: Program Increase: Software Development Efforts

| | FY 2022 | FY 2023 |
|--|----------------|----------------|
| | - | 10.000 |
| Congressional Add Subtotals for Project: EX1 | - | 10.000 |
| Congressional Add Totals for all Projects | - | 10.000 |

Change Summary Explanation

Funding provided for the SCI Software requirements as detailed in the SCI A-CDD.

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607143A / <i>Unmanned Aircraft System Universal Products</i> | | | | Project (Number/Name) EX1 / <i>Unmanned Aircraft Systems Universal Products</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| EX1: <i>Unmanned Aircraft Systems Universal Products</i> | - | 4.426 | 10.512 | 25.393 | - | 25.393 | 0.503 | 34.222 | 31.942 | 28.850 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

This funding line directly aligns to the Future Vertical Lift (FVL) portfolio. Scalable Control Interface (SCI) will be the primary means of Command and Control (C2) for Future Unmanned Aircraft Systems (FUAS), to include Air Launched Effects (ALE), Future Tactical UAS (FTUAS) and optionally manned rotary wing aircraft. Mission Command devices in both ground and airborne platforms (e.g. Future Attack and Reconnaissance Aircraft - FARA) will host SCI software serving as nodes on the Integrated Tactical Network or other Army-provided network to retrieve and provide data. SCI distributes UAS capabilities by greatly increasing the number of UAS control devices available to Soldiers, Commanders, and Battle Staff. SCI provides simultaneous employment of multiple aircraft/payloads from a single control node. SCI leverages a Modular Open System Approach (MOSA) to software in order to reduce time and cost to integrate new hardware and software in response to the dynamic future operating environment.

Deployment of SCI will include, but is not limited to, devices in the Mobile/Handheld Computing Environment (such as Nett Warrior), Mounted Computing Environment (such as MFoCS [Mounted Family of Computer Systems]), Command Post Computing Environment (such as TSI [Tactical Services Infrastructure]), and future Army rotary wing aircraft (FARA and Future Long Range Assault Aircraft - FLRAA). SCI will integrate decision aiding, autonomy, and artificial intelligence improvements as they technically mature, in order to support MDO and reduce cognitive workload.

Justification: Fiscal Year (FY) 2024 SCI (Universal Products) Base funding of \$25.393 million will continue the development, test, and integration of improved SCI capabilities as hosted on Mission Command and manned aircraft command and control devices in accordance with the SCI A-CDD.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Scalable Control Interface (SCI) | 4.426 | 0.493 | 25.393 |
| Description: SCI will be the primary means of C2 for Program of Record Army UAS. SCI software will be hosted on Mission Command devices in both ground and airborne platforms serving as nodes on the Integrated Tactical Network to retrieve and provide data. SCI distributes UAS capabilities by greatly increasing the number of UAS control devices available to Soldiers, Commanders, and Battle Staff. SCI provides simultaneous employment of multiple aircraft/payloads from a single control node. | | | |
| FY 2023 Plans: FY 2023 funding will be used to continue the development, integration, test, and demonstration of software applications meeting the SCI Software requirements and hosted Mission Command devices as detailed in the SCI A-CDD. | | | |
| FY 2024 Plans: | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607143A / <i>Unmanned Aircraft System Universal Products</i> | Project (Number/Name) EX1 / <i>Unmanned Aircraft Systems Universal Products</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| FY 2024 funding will be used to continue the development, test, and the integration of improved SCI capabilities as hosted on Mission Command and manned aircraft command and control devices in accordance with the SCI Abbreviated - Capabilities Development Document (A-CDD). | | | |
| <i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increase in funding will complete integration and qualification of SCI Minimum Viable Product (MVP). | | | |
| <i>Title:</i> SBIR/STTR <i>Description:</i> Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) Description: Funding transferred in accordance with Title 15 USC §638 | - | 0.019 | - |
| <i>FY 2023 Plans:</i> FY23 SBIR/STTR: Funding transferred in accordance with Title 15 USC §638 | | | |
| <i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> FY23 SBIR/STTR: Funding transferred in accordance with Title 15 USC §638 | | | |
| Accomplishments/Planned Programs Subtotals | 4.426 | 0.512 | 25.393 |

| | FY 2022 | FY 2023 |
|---|----------------|----------------|
| <i>Congressional Add:</i> Program Increase: Software Development Efforts | - | 10.000 |
| <i>FY 2023 Plans:</i> Funding for Scalable Control Interface development efforts | | |
| Congressional Adds Subtotals | - | 10.000 |

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

N/A

Remarks

D. Acquisition Strategy

Presently, PM UAS conducts SCI Software development and integration efforts under separate contracts awarded to niche experts in UAS software development, Human Machine Interface development and integration, and Mobile/Handheld and Mounted Computing Environment capabilities. Government ownership and management of the MOSA software interface standards is streamlining time and cost required to integrate future unmanned aircraft and payloads. SCI introduces an intuitive user interface that reduces required training and increases cognitive retention.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607143A / <i>Unmanned Aircraft System Universal Products</i> | Project (Number/Name) EX1 / <i>Unmanned Aircraft Systems Universal Products</i> |

SCI provides warfighters with prompt updates by rapidly integrating best of breed software applications instead of relying on costly sole source sustainment of monolithic software well past its usable lifecycle.

Starting in FY24 and as the program matures, PM UAS intends to partner with the software/robotics lab in the Ground Vehicle Support Center (GVSC) - the current developers of the Warfighter Machine Interface product - to provide a strong government integration team that will utilize incentivized contract for agile software development and integration.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|--|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607143A / <i>Unmanned Aircraft System Universal Products</i> | Project (Number/Name) EX1 / <i>Unmanned Aircraft Systems Universal Products</i> |
|--|--|---|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| SBIR/STTR | TBD | TBD : TBD | - | - | | 0.019 | Sep 2023 | - | | - | | - | 0.000 | 0.019 | - |
| Subtotal | | | - | - | | 0.019 | | - | | - | | - | 0.000 | 0.019 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Scalable Control Interface (SCI) Software Development | C/Various | Various : Various | 84.219 | 4.426 | Mar 2022 | 8.096 | Apr 2023 | 21.350 | Mar 2024 | - | | 21.350 | 0.000 | 118.091 | - |
| SEPM | TBD | TBD : TBD | - | - | | 1.194 | Apr 2023 | 2.890 | Dec 2023 | - | | 2.890 | 0.000 | 4.084 | - |
| Software Support | TBD | TBD : TBD | - | - | | 1.203 | Apr 2023 | 1.153 | Mar 2024 | - | | 1.153 | 0.000 | 2.356 | - |
| Subtotal | | | 84.219 | 4.426 | | 10.493 | | 25.393 | | - | | 25.393 | 0.000 | 124.531 | N/A |

| | | | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|--|--|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | | | 84.219 | 4.426 | 10.512 | 25.393 | - | 25.393 | 0.000 | 124.550 | N/A |

Remarks

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607143A / <i>Unmanned Aircraft System Universal Products</i> | Project (Number/Name) EX1 / <i>Unmanned Aircraft Systems Universal Products</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|----------------------|-----------------|-----------------------|---|---|--------------------------------|---|---|---|--------------------------------|---|---|---|------------------------|---|---|---|---------------------------------|---|---|---|-----------------------------|---|---|---|-----------------------------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| A-CDD | ▲ 1 A-CDD | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SWP Plan ADM | | | | | ▲ 3 SWP Plan ADM | | | | | | | | | | | | | | | | | | | | | | | |
| ASP2 | | | | | | | | | ▲ 6 ASP2 | | | | | | | | | | | | | | | | | | | |
| SWP Exec ADM | | | | | | | | | | | | | ▲ 8 SWP Exec ADM | | | | | | | | | | | | | | | |
| Prototype Contract 1 | | | | | ▲ 4 Prototype Contract 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Prototype Contract 2 | | | | | | | | | ▲ 7 Prototype Contract 2 | | | | | | | | | | | | | | | | | | | |
| Integration Contract | | | | | | | | | | | | | | | | | ▲ 12 Integration Contract | | | | | | | | | | | |
| Prototype 1 | | ▲ 2 Prototype 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Prototype 2 | | | | | | | | | ▲ 5 Prototype 2 | | | | | | | | | | | | | | | | | | | |
| MVP | | | | | | | | | | | | | ▲ 9 MVP | | | | | | | | | | | | | | | |
| MVCR | | | | | | | | | | | | | | | | | ▲ 10 MVCR | | | | | | | | | | | |
| SCI Capability 1 | | | | | | | | | | | | | | | | | | | | | ▲ 13 SCI Capability 1 | | | | | | | |
| SCI Capability 2 | | | | | | | | | | | | | | | | | | | | | | | | | ▲ 15 SCI Capability 2 | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607143A / <i>Unmanned Aircraft System Universal Products</i> | Project (Number/Name) EX1 / <i>Unmanned Aircraft Systems Universal Products</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|----------------------------|---|---|---|---------|----------------------------|---|---|---------|---|----------------------------|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Value Assessment 1 | | | | | | | | | | | | | | | | | ▲ 11 Value Assessment 1 | | | | | ▲ 14 Value Assessment 2 | | | | | ▲ 16 Value Assessment 3 | |
| Value Assessment 2 | | | | | | | | | | | | | | | | | ▲ 14 Value Assessment 2 | | | | | | | | | | | |
| Value Assessment 3 | | | | | | | | | | | | | | | | | ▲ 16 Value Assessment 3 | | | | | | | | | | | |
| SBIR Prototype Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Integration Contract to Incentivize Agile Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kutta Contract W56HZV-22-C-0069 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tektonux W31P4Q-21-F-C002 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607143A / <i>Unmanned Aircraft System Universal Products</i> | Project (Number/Name) EX1 / <i>Unmanned Aircraft Systems Universal Products</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| A-CDD | 2 | 2022 | 2 | 2022 |
| SWP Plan ADM | 1 | 2023 | 1 | 2023 |
| ASP2 | 2 | 2024 | 2 | 2024 |
| SWP Exec ADM | 4 | 2024 | 4 | 2024 |
| Prototype Contract 1 | 2 | 2023 | 2 | 2023 |
| Prototype Contract 2 | 3 | 2024 | 3 | 2024 |
| Integration Contract | 2 | 2026 | 2 | 2026 |
| Prototype 1 | 3 | 2022 | 3 | 2022 |
| Prototype 2 | 4 | 2023 | 4 | 2023 |
| MVP | 4 | 2024 | 4 | 2024 |
| MVCR | 4 | 2025 | 4 | 2025 |
| SCI Capability 1 | 1 | 2027 | 1 | 2027 |
| SCI Capability 2 | 1 | 2028 | 1 | 2028 |
| Value Assessment 1 | 1 | 2026 | 1 | 2026 |
| Value Assessment 2 | 1 | 2027 | 1 | 2027 |
| Value Assessment 3 | 1 | 2028 | 1 | 2028 |
| SBIR Prototype Development | 3 | 2023 | 4 | 2025 |
| Integration Contract to Incentivize Agile Development | 1 | 2026 | 4 | 2028 |
| Kutta Contract W56HZV-22-C-0069 | 1 | 2022 | 3 | 2023 |
| Tektonux W31P4Q-21-F-C002 | 1 | 2022 | 4 | 2023 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|--|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607145A / <i>Apache Future Development</i> |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | 0.000 | 9.700 | 25.074 | 10.547 | 0.000 | 10.547 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 45.321 |
| FD5: <i>Apache Product Improvement</i> | - | 9.700 | 25.074 | 10.547 | - | 10.547 | - | - | - | - | 0.000 | 45.321 |

A. Mission Description and Budget Item Justification

The Apache Capabilities Enhancements (ACE) prioritizes, informs, influences, matures, tracks, statuses, and packages technologies and/or material solutions to address known capability gaps, identified during real-world combat missions and associated with current/emerging threats; for transition to Apache development for integration and implementation to the AH-64E fleet to increase combat capability.

B. Program Change Summary (\$ in Millions)

| | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> |
|-------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 10.067 | 10.074 | 10.770 | - | 10.770 |
| Current President's Budget | 9.700 | 25.074 | 10.547 | - | 10.547 |
| Total Adjustments | -0.367 | 15.000 | -0.223 | - | -0.223 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | 15.000 | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.367 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -0.223 | - | -0.223 |

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: FD5: *Apache Product Improvement*

Congressional Add: *Modernization Efforts*

Congressional Add: *Strap Down Pilotage*

| | FY 2022 | FY 2023 |
|--|----------------|----------------|
| | - | 10.000 |
| | - | 5.000 |
| Congressional Add Subtotals for Project: FD5 | - | 15.000 |
| Congressional Add Totals for all Projects | - | 15.000 |

Change Summary Explanation

Decreased funding to support higher Army priorities.

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607145A / Apache Future Development | | | | Project (Number/Name) FD5 / Apache Product Improvement | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| FD5: Apache Product Improvement | - | 9.700 | 25.074 | 10.547 | - | 10.547 | - | - | - | - | 0.000 | 45.321 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Apache Capabilities Enhancements (ACE) prioritizes, informs, influences, matures, tracks, statuses, and packages technologies and/or material solutions to address known capability gaps, identified during real-world combat missions and associated with current/emerging threats; for transition to Apache development for integration and implementation to the AH-64E fleet to increase combat capability.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Apache Improved Tail Rotor Drive System (ITRDS) | 9.700 | 9.706 | 10.547 |
| Description: Increase performance/safety as well as reducing logistics footprint of current Tail Rotor Drive System | | | |
| FY 2023 Plans: Apache Project Management Office (PMO) will continue a 60-month phased approach to develop an Improved Tail Rotor Drive System (ITRDS) for the AH-64 platform. The end state objective of this program is to qualify the ITRDS component installation onto the AH-64 platform providing the capability of increased performance to meet reliability and maintainability improvements in the current fleet as well as meet objective future performance capabilities. Activities throughout Phase I will include Airworthiness Qualification Specification (AQS) development, trade study analysis and design review level of effort (LOE) resulting in the successful completion of Preliminary Design Review (PDR) milestone. | | | |
| FY 2024 Plans: Apache Project Management Office (PMO) will continue to execute design level reviews, component drawing development and reliability/maintainability risk mitigation assessments and technical development analysis. The Critical Design Review (CDR) will serve as the end cap milestone for Phase II, locking down the Improved Tail Rotor Drive System (ITRDS) design. Once completed, Phase III will continue pre-qualification and risk reduction efforts to mature the approved system design from CDR. Concurrently, component fabrication and prototyping efforts for the design will commence. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: The increase in funding for Project FD5 Apache Product Improvement from FY23 to FY24 results from fiscal year rate escalations and programmatic advancement throughout the phased scope of the Improved Tail Rotor Drive System (ITRDS) program. | | | |
| Title: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) | - | 0.368 | - |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607145A / Apache Future Development | Project (Number/Name) FD5 / Apache Product Improvement |
|--|---|--|

| | | | | |
|--|----------------|----------------|--|----------------|
| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | | FY 2024 |
| Description: Funding transferred in accordance with Title 15 USC §638 | | | | |
| FY 2023 Plans: FY23 SBIR/STTR: Funding transferred in accordance with Title 15 USC §638 | | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: FY23 SBIR/STTR: Funding transferred in accordance with Title 15 USC §638 | | | | |
| Accomplishments/Planned Programs Subtotals | 9.700 | 10.074 | | 10.547 |

| | | |
|---|----------------|----------------|
| | FY 2022 | FY 2023 |
| Congressional Add: Modernization Efforts | - | 10.000 |
| FY 2023 Plans: The Congressional Add will provide the ability to execute various component level analysis in accordance with Aeronautical Design Standard (ADS) 50 to bolster qualification testing level of effort (LOE) for the Improved Tail Rotor Drive System (ITRDS). ITRDS component level testing will also be performed in preparation for component and bench level qualification. | | |
| Congressional Add: Strap Down Pilotage | - | 5.000 |
| FY 2023 Plans: For the development and demonstration of a prototype Strap Down (Staring) Pilotage test article to evaluate options for a next generation pilotage system. | | |
| Congressional Adds Subtotals | - | 15.000 |

| | | | | | | | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-------------------|
| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
| Line Item | FY 2022 | FY 2023 | FY 2024 | FY 2024 | FY 2024 | | | | | | Cost To |
| | | | Base | OCO | Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Complete | Total Cost |
| • A05111: AH-64 Apache Block IIIA Reman | 646.366 | 693.879 | 828.938 | - | 828.938 | 572.538 | 1.795 | 1.650 | 1.647 | 5,763.012 | 8,509.825 |
| • A05133: AH-64 Apache Block IIIB New Build | - | - | 0.000 | - | 0.000 | - | - | - | - | Continuing | Continuing |
| • AA6605: AH-64 MODS | 118.560 | 85.840 | 113.127 | - | 113.127 | 46.724 | 96.740 | 95.879 | 70.368 | Continuing | Continuing |

Remarks

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607145A / Apache Future Development | Project (Number/Name) FD5 / Apache Product Improvement |

D. Acquisition Strategy

The NRE will encompass subsystem integration and will utilize existing test aircraft, incorporate the technical insertions, and initiate appropriate qualification and operational flight-testing. FY 2020 - FY 2023, the Apache Capabilities Enhancements (ACE) delivers required capability enhancements supported by Apache's Modernization Strategy to ensure AH-64E maintains relevance and dominance throughout its expected service life.

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607145A / Apache Future Development | Project (Number/Name) FD5 / Apache Product Improvement | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|-------------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| ITRDS Activities | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Contract Award for SPIKE NLOS | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Strap Down Pilotage | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Crossbow | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607145A / Apache Future Development | Project (Number/Name) FD5 / Apache Product Improvement |

Schedule Details

| Events | Start | | End | |
|-------------------------------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| ITRDS Activities | 4 | 2022 | 4 | 2027 |
| Contract Award for SPIKE NLOS | 3 | 2021 | 2 | 2024 |
| Strap Down Pilotage | 3 | 2023 | 3 | 2025 |
| Crossbow | 3 | 2021 | 4 | 2023 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|--|---|
| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0607148A / AN/TPQ-53 Counterfire Target Acquisition Radar System |
|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 46.009 | 61.559 | 54.167 | - | 54.167 | 33.213 | 8.574 | 8.665 | 8.761 | Continuing | Continuing |
| BY8: AN/TPQ-53 Counterfire Target Acquisition Radar Sys | - | 46.009 | 61.559 | 54.167 | - | 54.167 | 33.213 | 8.574 | 8.665 | 8.761 | Continuing | Continuing |

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Long Range Precision Fires (LRPF) Modernization Priority in support of the AN/TPQ-53 Counterfire target Acquisition Radar program. The AN/TPQ-53 Counterfire Target Acquisition Radar System is a highly mobile radar set that automatically detects, classifies, tracks, and locates the point of origin of projectiles fired from mortar, artillery, and rocket systems with sufficient accuracy for first round fire for effect. It mitigates close combat radar coverage gaps by providing a 90 degree search sector (stare mode) as well as 360 degree coverage (rotating) and replaces the AN/TPQ-36 and AN/TPQ-37 Firefinder Radars. The AN/TPQ-53 system interoperates with mission command systems to provide the maneuver commander increased counterfire radar flexibility. The AN/TPQ-53 is deployed as part of the Counter-Rocket, Artillery, Mortar (C-RAM) system of systems. It provides data to the Forward Area Air Defense Command and Control (FAAD C2) node for the sense and warn force protection capability. The AN/TPQ-53 currently supports contingency operations to include Operation Inherent Resolve (OIR) and is provided to Brigade Combat Teams (BCTs), Field Artillery Brigades (FABs) and Division Artilleries (DIVARTYS).

Fiscal Year (FY) 2024 research, development, test and evaluation (RDT&E) funds in the amount of \$54.167 million supports the design and development of a hardware/software Multi Domain Operation (MDO) digitization upgrade kit for Distributed Digital Receiver Exciter (DDREX) Capability Set #1 and Capability Set #2 to enhance system survivability, electronic protection (EP), bandwidth agility, and an integrated fires capability in a peer/near-peer threat environment. This includes development, integration, and providing a capability beyond the current range and location accuracy requirements. Funding also supports efforts required to counter indirect fire and improve survivability against electronic warfare threats identified in the Validated Online Lifecycle Threat (VOLT).

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 47.752 | 62.559 | 55.312 | - | 55.312 |
| Current President's Budget | 46.009 | 61.559 | 54.167 | - | 54.167 |
| Total Adjustments | -1.743 | -1.000 | -1.145 | - | -1.145 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | -1.000 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -1.743 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -1.145 | - | -1.145 |

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607148A / <i>AN/TPQ-53 Counterfire Target Acquisition Radar System</i> | |
| Change Summary Explanation Decreased funding to support higher Army priorities. | | |

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607148A / AN/TPQ-53 Counterfire Target Acquisition Radar System | | | | Project (Number/Name) BY8 / AN/TPQ-53 Counterfire Target Acquisition Radar Sys | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| BY8: AN/TPQ-53 Counterfire Target Acquisition Radar Sys | - | 46.009 | 61.559 | 54.167 | - | 54.167 | 33.213 | 8.574 | 8.665 | 8.761 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Long Range Precision Fires (LRPF) Modernization Priority in support of the AN/TPQ-53 Counterfire target Acquisition Radar program. The AN/TPQ-53 Counterfire Target Acquisition Radar System is a highly mobile radar set that automatically detects, classifies, tracks, and locates the point of origin of projectiles fired from mortar, artillery, and rocket systems with sufficient accuracy for first round fire for effect. It mitigates close combat radar coverage gaps by providing a 90 degree search sector (stare mode) as well as 360 degree coverage (rotating) and replaces the AN/TPQ-36 and AN/TPQ-37 Firefinder Radars. The AN/TPQ-53 system interoperates with mission command systems to provide the maneuver commander increased counterfire radar flexibility. The AN/TPQ-53 is deployed as part of the Counter-Rocket, Artillery, Mortar (C-RAM) system of systems. It provides data to the Forward Area Air Defense Command and Control (FAAD C2) node for the sense and warn force protection capability. The AN/TPQ-53 currently supports contingency operations to include Operation Inherent Resolve (OIR) and is provided to Brigade Combat Teams (BCTs), Field Artillery Brigades (FABs) and Division Artilleries (DIVARTYs).

Fiscal Year (FY) 2024 research, development, test and evaluation (RDT&E) funds in the amount of \$54.167 million supports the design and development of a hardware/software Multi Domain Operation (MDO) digitization upgrade kit for Distributed Digital Receiver Exciter (DDREX) Capability Set #1 and Capability Set #2 to enhance system survivability, electronic protection (EP), bandwidth agility, and an integrated fires capability in a peer/near-peer threat environment. This includes development, integration, and providing a capability beyond the current range and location accuracy requirements. Funding also supports efforts required to counter indirect fire and improve survivability against electronic warfare threats identified in the Validated Online Lifecycle Threat (VOLT).

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: MDO Digitization / Distributed Digital Receiver Exciter (DDREX) | 35.760 | 48.003 | 47.057 |
| Description: MDO Digitization / Distributed Digital Receiver Exciter (DDREX) is a modification-in-service Engineering Change Proposal (ECP) that provides increased force protection by addressing emerging and evolving electronic attack threats, improving electronic protection capabilities against Cyber Electromagnetic Activity (CEMA), and improving performance in a congested spectrum/environment via waveform diversity, spectrum agility and broadening the operational bandwidth. The system is also less susceptible to directed energy, jamming and anti-radiation missiles and provides improved extended range capability to enable timely and accurate targetable data in support of Long Range Precision Fires (LRPF). | | | |
| FY 2023 Plans: | | | |
| FY 2023 research, development, test and evaluation (RDT&E) funds in the amount of \$48.003 million supports the continuation of DDREX modification kit design, architecture and interface definition, hardware/software design and development in support | | | |

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|---|---|--|----------------|----------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607148A / AN/TPQ-53 Counterfire Target Acquisition Radar System | Project (Number/Name) BY8 / AN/TPQ-53 Counterfire Target Acquisition Radar Sys | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>of Capability Set #1 and Capability Set #2, and the procurement, delivery, integration, and testing of four DDREX Engineering Development Models (EDMs). This digitization upgrade kit will enhance system survivability (electronic protect (EP)) in a peer/near-peer threat environment and provide a capability that supports the latest range and location accuracy requirements. These Capability Sets, which include development of DDREX hardware and software to enable advanced survivability capability, will increase Counterfire Target Acquisition (CTA) performance and radar survivability.</p> <p>FY 2024 Plans: FY 2024 research, development, test and evaluation (RDT&E) funds in the amount of \$47.057 million supports the continuation of DDREX modification kit design and the integration, and testing of four DDREX Engineering Development Models (EDMs) in support of Capability Set #1 and Capability Set #2. These Capability Sets, which include development of DDREX hardware and software to enable advanced survivability capability, will increase Counterfire Target Acquisition (CTA) performance and radar survivability.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2023 efforts center around hardware EDM development. FY 2024 efforts focus on hardware testing as well as DDREX software development. The net reduction in costs from FY 2023 to FY 2024 is a result of decreased material procurement costs and increased software development and testing costs.</p> | | | | |
| <p>Title: Modernization Development Efforts and Emerging Threats</p> <p>Description: Modernization Development Efforts and Emerging Threats provides the ability to address upcoming threats on the battlefield by countering indirect fire and improving survivability against electronic warfare threats identified in the Validated Online Lifecycle Threat (VOLT). These efforts will continue to address complex evolving threats through advanced survivability development.</p> <p>FY 2023 Plans: FY 2023 research, development, test and evaluation (RDT&E) funds in the amount of \$8.288 million supports the Modernization Development Efforts and Emerging Threats. This requirement provides the ability to address upcoming threats on the battlefield by countering indirect fire and improving survivability against electronic warfare threats identified in the VOLT.</p> <p>FY 2024 Plans: FY 2024 research, development, test and evaluation (RDT&E) funds in the amount of \$4.272 million continues to support the Modernization Development Efforts and Emerging Threats. This requirement will continue to allow the ability to address evolving threats on the battlefield that are in the VOLT. This requirement is necessary to allow continued survivability capability.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> | | 8.453 | 8.288 | 4.272 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607148A / AN/TPQ-53 Counterfire Target Acquisition Radar System | Project (Number/Name) BY8 / AN/TPQ-53 Counterfire Target Acquisition Radar Sys |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Decrease in FY 2024 funding is the direct result of reduced hardware engineering requirements during FY 2024. | | | |
| Title: Program Management Support Description: Program management efforts include engineering, integration, and test support associated with DDREX development and modernization efforts addressing new and emerging threats. FY 2023 Plans: FY 2023 funding of \$3.021 million supports program management requirements. FY 2024 Plans: FY 2024 funding of \$2.838 million supports program management requirements. FY 2023 to FY 2024 Increase/Decrease Statement: The net reduction in costs from FY 2023 to FY 2024 is a result of a reduced number of operating facilities and associated support and travel utilized by the DDREX program in FY 2024. | 1.796 | 3.021 | 2.838 |
| Title: FY23 SBIR/STTR Transfer Description: Funding transferred in accordance with Title 15 USC §638. FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638. FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638. | - | 2.247 | - |
| Accomplishments/Planned Programs Subtotals | 46.009 | 61.559 | 54.167 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • B05310: AN/TPQ-53 Counterfire Target Acquisition Radar | 298.000 | 91.233 | 0.000 | - | 0.000 | - | - | 228.181 | 199.960 | 0.000 | 817.374 |
| • BA5315: AN/TPQ-53 MOD-IN-SERVICE LINE | 26.664 | 70.975 | 99.782 | - | 99.782 | 117.038 | 117.957 | 244.108 | 303.029 | Continuing | Continuing |

Remarks

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|---|--|---|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607148A / AN/TPQ-53 Counterfire Target Acquisition Radar System | Project (Number/Name) BY8 / AN/TPQ-53 Counterfire Target Acquisition Radar Sys |

D. Acquisition Strategy

Army approved a Total Army Analysis (TAA) force structure change, activating eight new Army National Guard Division Artilleries (ARNG DIVARTYs) with two AN/TPQ-53 radars each. In April 2022, the program AAO increased by 16 systems from 189 to 205 systems. In conjunction with Ukraine Assistance funds, the program is awarding an FRP Lot 4 production contract in FY 2023 for 16 systems to outfit the eight new ARNG DIVARTYs. The last FRP Lot 4 system will deliver in FY 2025.

The AN/TPQ-53 full Distributed Digital Receiver Exciter (DDREX) development began in FY 2022. This effort builds upon GaN, SDP 2.0, extended range (ER), electronic protection (EP), and secure contractor facilitization efforts. The initial development task order took place on the FRP Indefinite Delivery Indefinite Quantity (IDIQ) contract in FY 2022 and includes engineering development, design, prototyping, subsystem integration, and survivability software (electronic protect). A second task order will award in FY 2023 to develop and harden the survivability software. All development efforts will culminate in a series of tests leading to an Operational Test in the 4Q FY 2025. Initial production representative assets with an initial survivability capability will undergo a DDREX Live Fire Soldier Touch Point in 1Q FY 2025 to support a procurement decision for 60 DDREX mod kits. The program will utilize procurement funds in FY 2025 to support DDREX mod kit buys, organic depot facilitization, and updates to technical manuals and training materials. Supply transition and full material release are planned for FY 2026. The program will re-field systems with DDREX mod kits beginning in FY 2027. In the same year, the DDREX configuration will transition to organic hardware and software sustainment.

The AN/TPQ-53 program is a component of an integrated fires development effort that includes survivability, resiliency, and effectiveness improvements against advanced threats from near-peer adversaries. This effort includes integration with an evolving common fires mission command, common development tools and processes, and annual test and evaluation to provide data to support program assessments and progress toward closure of performance gaps.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | |
|---|------------------------|--------------------------------|-------------|---|------------|---------|------------|--|------------|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | |
| 2040 / 7 | | | | PE 0607148A / AN/TPQ-53 Counterfire Target Acquisition Radar System | | | | BY8 / AN/TPQ-53 Counterfire Target Acquisition Radar Sys | | | | | | | |
| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| FY23 SBIR/STTR Transfer | TBD | Various : Various | - | - | | 2.247 | Feb 2023 | - | | - | | - | 0.000 | 2.247 | - |
| Subtotal | | | - | - | | 2.247 | | - | | - | | - | 0.000 | 2.247 | N/A |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Modernization Development Efforts and EmergingThreats | SS/CPFF | Lockheed Martin : Syracuse, NY | - | 8.453 | Mar 2022 | 8.288 | Dec 2022 | 4.272 | Dec 2023 | - | | 4.272 | 0.000 | 21.013 | Continuing |
| MDO Digitization / Distributed Digital Receiver Exciter (DDREX) | SS/CPFF | Lockheed Martin : Syracuse, NY | - | 35.760 | Mar 2022 | 48.003 | Dec 2022 | 47.057 | Dec 2023 | - | | 47.057 | 0.000 | 130.820 | Continuing |
| Subtotal | | | - | 44.213 | | 56.291 | | 51.329 | | - | | 51.329 | 0.000 | 151.833 | N/A |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Program Management Support - Contractor | SS/ Various | Various : Various | - | 0.880 | Mar 2022 | 1.360 | Nov 2022 | 1.277 | Nov 2023 | - | | 1.277 | 0.000 | 3.517 | Continuing |
| Program Management Support - Government | SS/ Various | Various : Various | - | 0.916 | Mar 2022 | 1.661 | Nov 2022 | 1.561 | Nov 2023 | - | | 1.561 | 0.000 | 4.138 | Continuing |
| Subtotal | | | - | 1.796 | | 3.021 | | 2.838 | | - | | 2.838 | 0.000 | 7.655 | N/A |
| Project Cost Totals | | | - | 46.009 | | 61.559 | | 54.167 | | - | | 54.167 | 0.000 | 161.735 | N/A |
| Remarks | | | | | | | | | | | | | | | |

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607148A / AN/TPQ-53 Counterfire Target Acquisition Radar System | Project (Number/Name) BY8 / AN/TPQ-53 Counterfire Target Acquisition Radar Sys |
|--|---|--|

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | | | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|--|--|--|--|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | |
| DDREX System, Hardware and Software Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DDREX System Integration and Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DDREX System Critical Design Review | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Developmental Test #1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Developmental Test #2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Soldier Touch Point #1 (CDR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Soldier Touch Point #2 (EDM) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Soldier Touch Point #3 (Live Fire) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Soldier Touch Point #4 (Cooperative Vulnerability Penetr... | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SoldierTouch Point #5 (Tech Manual Ver) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DDREX Operational Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DDREX Adversarial Assessment | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DDREX Transition to Organic Supply | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | R-1 Program Element (Number/Name) PE 0607148A / AN/TPQ-53 Counterfire Target Acquisition Radar System | | Project (Number/Name) BY8 / AN/TPQ-53 Counterfire Target Acquisition Radar Sys | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| DDREX Material Release | | | | | | | | | | | | | | | | | ▲ 11 | | | | | | | | | | | |
| DDREX Transition to Organic Depot Repair | | | | | | | | | | | | | | | | | ▲ 13 | | | | | | | | | | | |
| DDREX Transition to Organic Software Support | | | | | | | | | | | | | | | | | ▲ 14 | | | | | | | | | | | |
| Modernization, Emerging Threats and Testing (per VOLT) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607148A / AN/TPQ-53 Counterfire Target Acquisition Radar System | Project (Number/Name) BY8 / AN/TPQ-53 Counterfire Target Acquisition Radar Sys |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| DDREX System, Hardware and Software Development | 1 | 2022 | 3 | 2025 |
| DDREX System Integration and Test | 3 | 2023 | 4 | 2025 |
| DDREX System Critical Design Review | 1 | 2023 | 1 | 2023 |
| Developmental Test #1 | 2 | 2025 | 2 | 2025 |
| Developmental Test #2 | 3 | 2025 | 3 | 2025 |
| Soldier Touch Point #1 (CDR) | 1 | 2023 | 1 | 2023 |
| Soldier Touch Point #2 (EDM) | 4 | 2024 | 4 | 2024 |
| Soldier Touch Point #3 (Live Fire) | 1 | 2025 | 1 | 2025 |
| Soldier Touch Point #4 (Cooperative Vulnerability Penetration Assessment) | 4 | 2025 | 4 | 2025 |
| SoldierTouch Point #5 (Tech Manual Ver) | 4 | 2025 | 4 | 2025 |
| DDREX Operational Test | 4 | 2025 | 4 | 2025 |
| DDREX Adversarial Assessment | 1 | 2026 | 1 | 2026 |
| DDREX Transition to Organic Supply | 2 | 2027 | 2 | 2027 |
| DDREX Material Release | 3 | 2026 | 3 | 2026 |
| DDREX Transition to Organic Depot Repair | 2 | 2027 | 2 | 2027 |
| DDREX Transition to Organic Software Support | 2 | 2027 | 2 | 2027 |
| Modernization, Emerging Threats and Testing (per VOLT) | 1 | 2022 | 4 | 2028 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|--|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607150A / <i>Intel Cyber Development</i> |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-------------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 3.611 | 13.343 | 4.345 | - | 4.345 | 4.849 | 4.855 | 4.907 | 4.962 | 0.000 | 40.872 |
| BS5: <i>Intel Cyber Development</i> | - | 3.611 | 13.343 | 4.345 | - | 4.345 | 4.849 | 4.855 | 4.907 | 4.962 | 0.000 | 40.872 |

A. Mission Description and Budget Item Justification

(CUI) INSCOM's Offensive Cyberspace Operations (OCO) rapid development efforts provide the capabilities required to execute overarching mission command and employment of sanctuary-based and forward-deployed close access OCO in a multi-domain battle environment providing a significant competitive advantage inside of the threat's decision cycle. Further, INSCOM's rapid development efforts address capabilities needed to realize specified tasks outlined in the DoD Cyber Strategy, The Army's Operating Concept, Force 2025 and Beyond Strategy, and INSCOM's Strategic Plan by integrating cyberspace capabilities into modular and scalable platforms and architectures that are tailored to conduct expeditionary operations and accelerate the decision cycle across the range of military operations. Development of capabilities is derived from established JCIDs, CRDs, ONS as validated by Army and Army Cyber Command (Executive Agent for Offensive Cyberspace Capabilities requirements), and in response to Functional/Geographic Combatant Command named operations.

FOR ADDITIONAL DETAILS REQUEST CLASSIFIED ANNEX.

B. Program Change Summary (\$ in Millions)

| | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> |
|-------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 3.611 | 13.343 | 4.437 | - | 4.437 |
| Current President's Budget | 3.611 | 13.343 | 4.345 | - | 4.345 |
| Total Adjustments | 0.000 | 0.000 | -0.092 | - | -0.092 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -0.092 | - | -0.092 |

Change Summary Explanation

Decreased funding to support higher Army priorities.

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607150A / Intel Cyber Development | | | | Project (Number/Name) BS5 / Intel Cyber Development | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| BS5: Intel Cyber Development | - | 3.611 | 13.343 | 4.345 | - | 4.345 | 4.849 | 4.855 | 4.907 | 4.962 | 0.000 | 40.872 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

INSCOM's SIGINT/EW/Cyberspace Capability Development Program is continuous and iterative; generally, when presented with a demand signal for development of a capability, the target delivery window is between 30 days up to 12 months. If INSCOM cannot deliver in the window, we coordinate with Geographic and Functional Combatant Commands, ARCYBER and PdM-IW to develop an effective capability solution.

INSCOM's tools portfolio provides mission applications that serve as the "ammunition" needed to conduct operations and impose costs while enabling the organic software developers to build tools at the speed required for persistent engagement.

Maintain robust development level of cutting-edge multi-domain electronic warfare, signals intelligence and cyberspace operations tools and weapons.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Offensive Cyberspace Operations Capability Development | 3.611 | 13.343 | 4.345 |
| <p>Description: INSCOM's RDTE program provides the Army with low-density, high-demand, extremely advanced multi-domain intelligence collection and cyberspace technologies (SIGINT, EW, Cyberspace) designed to collect, process, exploit, and when directed, degrade, deny, disrupt, or destroy adversary C4I and shape the operational warfighting environment in order to create conditions favorable to the application of other elements of national power.</p> <p>FY 2023 Plans: Develop and support leading-edge multi-domain intelligence and cyberspace operations technologies designed to collect, process, exploit, and, when directed, degrade, deny, disrupt, or destroy threat command, control, communications, computers and intelligence (C4I) cyber systems to enable commanders in shaping the operational warfighting environment in order to create conditions favorable to the application of other elements of national power. Support the development of multi-domain intelligence and cyberspace operations technologies in direct support of the full range of missions called for in the National Defense Strategy, Comprehensive National Cyber-Security Initiative, National Security Strategy, National Defense Guidance, Defense Cyber Strategy, Presidential Policy Directive (PPD) 20, National Security Presidential Directive (NSPD) 54, Homeland Defense Presidential Directive (HSPD) 23, and The Army Operating Concept. INSCOM will address the operational force reports of increasing threat sophistication that requires matching pace in development of offensive capabilities to maintain critical advantage across the operational domains, particularly within the electromagnetic spectrum focused on signals intelligence (SIGINT), electronic warfare (EW, composed of the sub-domains of Electronic Support and Electronic Attack), and cyberspace operations. Expand combatant command focal points in accordance with Secretary of</p> | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607150A / Intel Cyber Development | Project (Number/Name) BS5 / Intel Cyber Development |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| <p>the Army service component commander's emerging needs. The requirement to address NEER-PEER threat actors and Army multi-domain operations that are expanding across the warfighting domains drive the need to reduce development gaps in these capabilities.</p> <p>FY 2024 Plans: Develop and support leading-edge multi-domain intelligence and cyberspace operations technologies designed to collect, process, exploit, and, when directed, degrade, deny, disrupt, or destroy threat command, control, communications, computers and intelligence (C4I) cyber systems to enable commanders in shaping the operational warfighting environment in order to create conditions favorable to the application of other elements of national power. Support the development of multi-domain intelligence and cyberspace operations technologies in direct support of the full range of missions called for in the National Defense Strategy, Comprehensive National Cyber-Security Initiative, National Security Strategy, National Defense Guidance, Defense Cyber Strategy, Presidential Policy Directive (PPD) 20, National Security Presidential Directive (NSPD) 54, Homeland Defense Presidential Directive (HSPD) 23, and The Army Operating Concept.</p> <p>INSCOM will address the operational force reports of increasing threat sophistication that requires matching pace in development of offensive capabilities to maintain critical advantage across the operational domains, particularly within the electromagnetic spectrum focused on signals intelligence (SIGINT), electronic warfare (EW, composed of the sub-domains of Electronic Support and Electronic Attack), and cyberspace operations. Expand combatant command focal points in accordance with Secretary of the Army service component commander's emerging needs. The requirement to address NEER-PEER threat actors and Army multi-domain operations that are expanding across the warfighting domains drive the need to reduce development gaps in these capabilities.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: In FY24 decrease in funds accounts for a reduction in projected discrete development which will be at lower efforts than in FY23.</p> | | | |
| Accomplishments/Planned Programs Subtotals | 3.611 | 13.343 | 4.345 |

| |
|---|
| C. Other Program Funding Summary (\$ in Millions) N/A |
| Remarks |
| D. Acquisition Strategy N/A |

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army **Date:** March 2023

| | | |
|--|---|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607150A / Intel Cyber Development | Project (Number/Name) BS5 / Intel Cyber Development |
|--|---|---|

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|------------|---|---|---|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| IP-BASED OPERATIONS PLATFORMS | [REDACTED] | | | | [REDACTED] | | | | | | | | | | | | | | | | | | | | | | | |
| AERIAL/GROUND-BASED PLATFORMS | [REDACTED] | | | | [REDACTED] | | | | | | | | | | | | | | | | | | | | | | | |
| REMOTE ACCESS CAPABILITIES | [REDACTED] | | | | [REDACTED] | | | | | | | | | | | | | | | | | | | | | | | |
| CLOSE ACCESS CAPABILITIES | [REDACTED] | | | | [REDACTED] | | | | | | | | | | | | | | | | | | | | | | | |
| PLATFORM CZ AND VISUALIZATION CAPABILITIES | [REDACTED] | | | | [REDACTED] | | | | | | | | | | | | | | | | | | | | | | | |
| TESTING & EVALUATION SUPPORT FOR RDTE CAPABILITIES | [REDACTED] | | | | [REDACTED] | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607150A / <i>Intel Cyber Development</i> | Project (Number/Name) BS5 / <i>Intel Cyber Development</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| IP-BASED OPERATIONS PLATFORMS | 1 | 2022 | 1 | 2024 |
| AERIAL/GROUND-BASED PLATFORMS | 1 | 2022 | 1 | 2024 |
| REMOTE ACCESS CAPABILITIES | 1 | 2022 | 1 | 2024 |
| CLOSE ACCESS CAPABILITIES | 1 | 2022 | 1 | 2024 |
| PLATFORM CZ AND VISUALIZATION CAPABILITIES | 1 | 2022 | 1 | 2024 |
| TESTING & EVALUATION SUPPORT FOR RDTE CAPABILITIES | 1 | 2022 | 1 | 2024 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|--|--|
| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0607312A / Army Operational Systems Development |
|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 28.029 | 26.131 | 19.000 | - | 19.000 | 22.388 | 29.505 | 32.778 | 29.113 | 0.000 | 186.944 |
| BR5: Army Operational Systems Development | - | 28.029 | 26.131 | 19.000 | - | 19.000 | 22.388 | 29.505 | 32.778 | 29.113 | 0.000 | 186.944 |

A. Mission Description and Budget Item Justification

The Army Operational System Development budget line includes development efforts across all Army Battlefield Operating Systems to upgrade systems that have been fielded or have received approval for full rate production. Systems in this budget line are characterized as having, or supporting programs that have received, Milestone C or Low Rate Initial Production (LRIP) approval.

Selected programs within this budget line will exhibit a logical progression of program phases, development and production funding within the FYDP, consistent with the Department's full funding policy.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 28.029 | 26.131 | 27.809 | - | 27.809 |
| Current President's Budget | 28.029 | 26.131 | 19.000 | - | 19.000 |
| Total Adjustments | 0.000 | 0.000 | -8.809 | - | -8.809 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -8.809 | - | -8.809 |

Change Summary Explanation

Decrease in funding is due to alignment of funding to Cybercom to support Joint Force capabilities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|--|--|
| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0607313A / Electronic Warfare Development |
|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-----------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 5.673 | 6.432 | 6.389 | - | 6.389 | 5.689 | 5.695 | 5.755 | 5.820 | 0.000 | 41.453 |
| CE2: Prophet | - | 5.673 | 6.432 | 6.389 | - | 6.389 | 5.689 | 5.695 | 5.755 | 5.820 | 0.000 | 41.453 |

A. Mission Description and Budget Item Justification

This Program Element encompasses operational system development for tactical Electronic Warfare (EW) terrestrial (ground) employment applications. The systems under this program provide the Army with the capability to detect, identify, locate, collect/process, report, and engage (disrupt, degrade or deny) hostile forces to prevent their effective use of communications & non-communications networks, counter-mortar/counter-battery radars, surveillance radars, electronically fused munitions and other enemy threats using the Electro-Magnetic Spectrum (EMS). Prophet enables integration, interoperability and force modernization with emerging capabilities in support of Multi-Domain Task Forces.

FY 2024 funding in the amount of \$6.389M funds the Prophet Enhanced efforts (Project CE2). Project CE2 supports the Prophet Enhanced Program of Record, the Army's current Terrestrial Signals Intelligence (SIGINT) system. Funding provides for development of relevancy efforts for state-of-the-art SIGINT exploitation to pace near peer and emerging enemy threat signals as well as engineering to mitigate component obsolescence. The primary mission of the Prophet Enhanced effort is to provide 24-hour Situation Development and Information Superiority to the supported maneuver brigade enabling the most effective engagement of enemy forces. Prophet Enhanced provides a modular, scalable, open architecture-based system solution optimized for ease of use in a variety of configurations.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 5.673 | 6.432 | 6.524 | - | 6.524 |
| Current President's Budget | 5.673 | 6.432 | 6.389 | - | 6.389 |
| Total Adjustments | 0.000 | 0.000 | -0.135 | - | -0.135 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -0.135 | - | -0.135 |

Change Summary Explanation

Decreased funding to support higher Army priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607313A / <i>Electronic Warfare Development</i> | Project (Number/Name) CE2 / <i>Prophet</i> |
|--|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| CE2: <i>Prophet</i> | - | 5.673 | 6.432 | 6.389 | - | 6.389 | 5.689 | 5.695 | 5.755 | 5.820 | 0.000 | 41.453 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Project CE2 supports the Prophet Enhanced Program of Record, the Army's current fielded terrestrial Signals Intelligence (SIGINT)/Electronic Warfare Support system. Funds provide for development and integration of Signal of Interest (SOI); Technical Insertion engineering for Next Generation Signals; state-of-the-art SIGINT exploitation techniques to increase the capabilities of Prophet Enhanced; enabling the system to pace near peer; and emerging enemy threat signals. Additionally, funds provide for efforts to include engineering, development and testing to mitigate component obsolescence. The Prophet Enhanced is the tactical commander's organic ground-based SIGINT/Electronic Warfare Support system. Its primary mission is to provide 24-hour Situation Development and Information Superiority to the supported maneuver brigade to enable the most effective engagement of enemy forces. Prophet Enhanced provides a modular, scalable, open architecture-based system solution optimized for ease of use in a variety of configurations. It also incorporates product modification, integration, evaluation and demonstration events of equipment for rapid integration of Technical Insertions (TI) and product development to ensure operational relevance.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| <p>Title: Program Management</p> <p>Description: Engineering, technical and programmatic oversight of the development of next generation signals.</p> <p>FY 2023 Plans: Funds will provide for continued matrix and contractor system engineering and program management support for the Prophet program.</p> <p>FY 2024 Plans: Funds will provide for continued matrix and contractor system engineering and program management support for the Prophet program.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 level of effort anticipated to remain relatively stable.</p> | 0.567 | 0.696 | 0.682 |
| <p>Title: Signal of Interest upgrades</p> <p>Description: The Signal Environment that Prophet Systems exploit is constantly contested with evolving threats. This environment creates gaps in Prophet's ability to collect and exploit these signals. Prophet must integrate the latest emerging Intelligence Community (IC), commercial solutions and capabilities from other sources to remain relevant against these numerous, key, and high-priority emerging threats.</p> | 2.553 | 2.868 | 2.854 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607313A / <i>Electronic Warfare Development</i> | Project (Number/Name) CE2 / <i>Prophet</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| <p><i>FY 2023 Plans:</i> Continuing development and integration of Next Generation SIGINT capabilities into the Prophet SIGINT Software (PS2). The new signals and libraries of signals address key exploitation gaps in the Prophet system's ability to collect against key tactical near peer signals and emerging threats.</p> <p><i>FY 2024 Plans:</i> Continuing development and integration of Next Generation SIGINT capabilities into the Prophet SIGINT Software (PS2). The new signals and libraries of signals address key exploitation gaps in the Prophet system's ability to collect against key tactical near peer signals and emerging threats.</p> <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> FY 2024 level of effort anticipated to remain relatively stable.</p> | | | |
| <p><i>Title:</i> Componnet Obsolescence Engineering</p> <p><i>Description:</i> Due to the highly technical nature of Prophet Enhanced, over the course of time, many components on the system are no longer produced or supported, which necessitates non-recurring engineering (NRE) to integrate and incorporate new and replacement parts.</p> <p><i>FY 2023 Plans:</i> Continuing obsolescence engineering for components on the Prophet Enhanced systems.</p> <p><i>FY 2024 Plans:</i> Continuing obsolescence engineering for components on the Prophet Enhanced systems.</p> <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> FY 2024 level of effort anticipated to remain relatively stable.</p> | 2.553 | 2.868 | 2.853 |
| Accomplishments/Planned Programs Subtotals | 5.673 | 6.432 | 6.389 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • BZ9751: <i>SPECIAL PURPOSE SYSTEMS</i> | 3.739 | 9.224 | 4.169 | - | 4.169 | 6.695 | 6.722 | 6.726 | 6.732 | 0.000 | 44.007 |
| Remarks | | | | | | | | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607313A / <i>Electronic Warfare Development</i> | Project (Number/Name) CE2 / <i>Prophet</i> |

D. Acquisition Strategy

The Prophet Research and Development (R&D) Acquisition Strategy is structured to maintain operational relevancy of Prophet Enhanced systems in a dynamic threat environment while reducing risk and streamlining business and engineering processes. Contracting activities are to maintain SIGINT relevance and complete Technical Insertion (TI) to Prophet Enhanced systems to pursue the latest Signals of Interest and design against obsolescence. The Technical Insertion (TI) contract supports R&D and other developmental work.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607313A / <i>Electronic Warfare Development</i> | Project (Number/Name) CE2 / <i>Prophet</i> |
|--|---|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Program Management | C/Various | PM Electronic Warfare & Cyber : APG, MD | - | 0.365 | Feb 2022 | 0.696 | Nov 2022 | 0.682 | Nov 2023 | - | | 0.682 | 0.000 | 1.743 | - |
| Subtotal | | | - | 0.365 | | 0.696 | | 0.682 | | - | | 0.682 | 0.000 | 1.743 | N/A |

Remarks
Efforts will be accomplished via a combination of Matrixed Government Support as well as Systems Engineering and Technical Assistance (SETA) via competitive contract #W15P7T-17-D-0100

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Signal of Interest Upgrades | SS/CPFF | GD Mission Systems and Various Supporting Organizations : Scottsdale, AZ | - | 2.654 | Dec 2021 | 2.868 | Dec 2022 | 2.854 | Dec 2023 | - | | 2.854 | 0.000 | 8.376 | - |
| Component Obsolescence Engineering | SS/CPFF | GD Mission Systems and Various Supporting Organizations : Scottsdale, AZ | - | 2.654 | May 2022 | 2.868 | Dec 2022 | 2.853 | Dec 2023 | - | | 2.853 | 0.000 | 8.375 | - |
| Subtotal | | | - | 5.308 | | 5.736 | | 5.707 | | - | | 5.707 | 0.000 | 16.751 | N/A |

Remarks
Efforts will be accomplished via contract # W56KGY-17-D-0006 to ensure systems remain relevant against emerging enemy threat signals and that any components of the system that become obsolete or are no longer produced can be re-engineered.

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | - | 5.673 | 6.432 | 6.389 | - | 6.389 | 0.000 | 18.494 | N/A |

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|---|--------------------|----------------|---|---------------------|--------------------|--|-------------------------|-------------------|---------------------------------|--|
| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | Date: March 2023 | | | |
| Appropriation/Budget Activity 2040 / 7 | | | R-1 Program Element (Number/Name) PE 0607313A / <i>Electronic Warfare Development</i> | | | Project (Number/Name) CE2 / <i>Prophet</i> | | | | |
| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract | |

Remarks

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | R-1 Program Element (Number/Name) PE 0607313A / <i>Electronic Warfare Development</i> | | Project (Number/Name) CE2 / <i>Prophet</i> | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--------------------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Prophet Enhanced Technical Insertion | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer Testing (2023) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer Testing (2025) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer Testing (2027) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607313A / <i>Electronic Warfare Development</i> | Project (Number/Name) CE2 / <i>Prophet</i> |

Schedule Details

| Events | Start | | End | |
|--------------------------------------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Prophet Enhanced Technical Insertion | 1 | 2020 | 3 | 2028 |
| Customer Testing (2023) | 2 | 2023 | 3 | 2023 |
| Customer Testing (2025) | 2 | 2025 | 3 | 2025 |
| Customer Testing (2027) | 2 | 2027 | 3 | 2027 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | | | | | R-1 Program Element (Number/Name) PE 0607315A / <i>Enduring Turbine Engines and Power Systems</i> | | | | | | | |
|---|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| Total Program Element | - | - | - | 2.411 | - | 2.411 | 2.615 | 4.731 | 3.022 | 5.042 | 0.000 | 17.821 |
| DD5: <i>Army Power Systems Modernization</i> | - | - | - | 2.411 | - | 2.411 | 2.615 | 4.731 | 3.022 | 5.042 | 0.000 | 17.821 |

Note

Enduring Turbine Engines and Power Systems is a new start in FY 2024.

A. Mission Description and Budget Item Justification

This funding line is in support of the Electrical Power Systems (EPS) Modernization efforts, a key enabler for Army Aviation Modernization Priorities. EPS is a Tier 2 Army Aviation modernization priority effort and Major Systems Component (MSC) of the PEO Aviation Modular Open System Approach (MOSA) Strategy to address aging platform electrical systems architectures developed in the 1970's, current capability gaps, and future system requirements. EPS will increase capacity, enhance system capability, enable new technology insertions and improved systems supporting increased lethality and survivability in Multi-Domain Operations (MDO). EPS will provide a modernized common systems architecture, active power management capability, improved power generation, distribution, and storage thru new higher capacity and density common generators, airworthy supplemental power units, advanced common batteries, and improved conversion electronics capable of supporting the increased systems loads and demands. Benefits include improved platform safety and decreased pilot workload, improved design life, enhanced reliability, lower maintenance and sustainment costs, and a decreased logistics footprint. Additionally, EPS lays the foundations necessary for optionally piloted/increased autonomy, more electrified aircraft initiatives, and supports the US Army Climate Strategy to break the tether to fossil fuels. The program consists of systems engineering and program management, design engineering, design assurance, component development and testing, system level testing and qualification, and platform integration and qualification.

FY 2024 funding will initiate MOSA architecture and Systems Engineering efforts, and initiate EPS Platform Architecture Studies for the AH-64 and CH-47 aircraft. FY 2025 funding completes the AH-64 and CH-47 Platform Architecture Studies, initiates development of the Common EPS Architecture, and initiates the EPS Power Management Systems Integration Lab (SIL) development efforts. FY 2026 funding completes the Common EPS Architecture development efforts, continues the EPS Power Management SIL development, and initiates component testing efforts. FY 2027 funding continues the EPS Power Management SIL development and component testing efforts and initiates the Supplemental Power Unit (SPU) testing efforts. FY 2028 funding continues testing efforts and supports Project Convergence demonstration efforts.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607315A / <i>Enduring Turbine Engines and Power Systems</i> |
|---|---|

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 0.000 | 0.000 | 0.000 | - | 0.000 |
| Current President's Budget | 0.000 | 0.000 | 2.411 | - | 2.411 |
| Total Adjustments | 0.000 | 0.000 | 2.411 | - | 2.411 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 2.411 | - | 2.411 |

Change Summary Explanation

Project DD5 (Army Power Systems Modernization) is a new start within PE 0607315A (Enduring Turbine Engines and Power Systems) beginning in FY 2024.

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607315A / Enduring Turbine Engines and Power Systems | | | | Project (Number/Name) DD5 / Army Power Systems Modernization | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| DD5: Army Power Systems Modernization | - | - | - | 2.411 | - | 2.411 | 2.615 | 4.731 | 3.022 | 5.042 | 0.000 | 17.821 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

Note

Army Power Systems Modernization is a new start within the Enduring Turbine Engines and Power Systems program in FY 2024.

A. Mission Description and Budget Item Justification

This funding line is in support of the Electrical Power Systems (EPS) Modernization efforts, a key enabler for Army Aviation Modernization Priorities. EPS is a Tier 2 Army Aviation modernization priority effort and Major Systems Component (MSC) of the PEO Aviation Modular Open System Approach (MOSA) Strategy to address aging platform electrical systems architectures developed in the 1970's, current capability gaps, and future system requirements. EPS will increase capacity, enhance system capability, enable new technology insertions and improved systems supporting increased lethality and survivability in Multi-Domain Operations (MDO). EPS will provide a modernized common systems architecture, active power management capability, improved power generation, distribution, and storage thru new higher capacity and density common generators, airworthy supplemental power units, advanced common batteries, and improved conversion electronics capable of supporting the increased systems loads and demands. Benefits include improved platform safety and decreased pilot workload, improved design life, enhanced reliability, lower maintenance and sustainment costs, and a decreased logistics footprint. Additionally, EPS lays the foundations necessary for optionally piloted/increased autonomy, more electrified aircraft initiatives, and supports the US Army Climate Strategy to break the tether to fossil fuels. The program consists of systems engineering and program management, design engineering, design assurance, component development and testing, system level testing and qualification, and platform integration and qualification.

FY 2024 funding will initiate MOSA architecture and Systems Engineering efforts, and initiate EPS Platform Architecture Studies for the AH-64 and CH-47 aircraft. FY 2025 funding completes the AH-64 and CH-47 Platform Architecture Studies, initiates development of the Common EPS Architecture, and initiates the EPS Power Management Systems Integration Lab (SIL) development efforts. FY 2026 funding completes the Common EPS Architecture development efforts, continues the EPS Power Management SIL development, and initiates component testing efforts. FY 2027 funding continues the EPS Power Management SIL development and component testing efforts and initiates the Supplemental Power Unit (SPU) testing efforts. FY 2028 funding continues testing efforts and supports Project Convergence demonstration efforts.

B. Accomplishments/Planned Programs (\$ in Millions)

| | | | |
|--|----------------|----------------|----------------|
| | FY 2022 | FY 2023 | FY 2024 |
| Title: Electric Power Systems (EPS) Modernization Efforts | - | - | 2.411 |
| FY 2024 Plans: | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607315A / <i>Enduring Turbine Engines and Power Systems</i> | Project (Number/Name) DD5 / <i>Army Power Systems Modernization</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| FY 2024 funding will initiate MOSA architecture and System Engineering efforts, and initiate EPS Platform Architecture Studies for the AH-64 and CH-47 aircraft. | | | |
| <i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Establishment of New Funding Line | | | |
| Accomplishments/Planned Programs Subtotals | - | - | 2.411 |

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

N/A

Remarks

D. Acquisition Strategy

Apache and Chinook Platform Architecture Studies will be awarded in FY 2024 to the Boeing Company thru the MOSA Transition Office AMTC OTA Contract. Following a successful completion of the Architecture Studies, in FY 2025 the integrator for the Common Architecture development efforts will be selected and contracted thru the MOSA Transition Office AMTC OTA Contract. In FY2025, development of the Government Owned power management Systems Integration Lab effort and execution will be accomplished as a Joint Effort with the US Army Combat Capabilities Development Command C5ISR Center.

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607315A / <i>Enduring Turbine Engines and Power Systems</i> | Project (Number/Name) DD5 / <i>Army Power Systems Modernization</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|----------------------|---------|---|---|---|---------|---|---|---|----------|---|---|---|----------|---|---|---|----------|---|---|---|----------|---|---|---|----------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| CSM Modeling | | | | | | | | | ████████ | | | | ████████ | | | | ████████ | | | | | | | | | | | |
| Apache Architecture | | | | | | | | | | | | | ████████ | | | | ████████ | | | | | | | | | | | |
| Chinook Architecture | | | | | | | | | | | | | ████████ | | | | ████████ | | | | | | | | | | | |
| Common Architecture | | | | | | | | | | | | | | | | | ████████ | | | | ████████ | | | | | | | |
| EPS Power Management | | | | | | | | | | | | | | | | | | | | | ████████ | | | | ████████ | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607315A / <i>Enduring Turbine Engines and Power Systems</i> | Project (Number/Name) DD5 / <i>Army Power Systems Modernization</i> |

Schedule Details

| Events | Start | | End | |
|----------------------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| CSM Modeling | 1 | 2024 | 4 | 2026 |
| Apache Architecture | 1 | 2024 | 1 | 2025 |
| Chinook Architecture | 1 | 2024 | 1 | 2025 |
| Common Architecture | 1 | 2025 | 4 | 2026 |
| EPS Power Management | 1 | 2025 | 4 | 2028 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607665A / <i>Family of Biometrics</i> |
|---|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 1.101 | 1.114 | 0.797 | - | 0.797 | 0.589 | 0.830 | 0.633 | 0.519 | Continuing | Continuing |
| DU2: <i>Management Agency</i> | - | 1.101 | 1.114 | 0.797 | - | 0.797 | 0.589 | 0.830 | 0.633 | 0.519 | Continuing | Continuing |

A. Mission Description and Budget Item Justification

DU2 / Non-MIP Biometrics - Biometrics Enabling Capability 0 (BEC 0), aka DoD Automated Biometrics Identification System (DoD ABIS), is an Army information technology system supporting identity superiority by providing the critical core capability for Warfighters to identify known or suspected threat actors in Multi Domain Operations (MDO) to include peer adversaries, terrorists and third country nationals. BEC 0 is an Army Program of Record and DoD's only authoritative biometric repository, providing 24/7 operational support for the Warfighter and interagency partners to decide and act in near-real time with timely identification and identity verification of known or suspected threat actors across the full range of military operations. DoD ABIS enables actionable intelligence supporting offensive operations and preventing espionage, sabotage, terrorist operations and other coercive actions against US forces and partner nations. DoD ABIS enables the Army, all other DOD components, Interagency and International Partners to effectively impede adversary's ability to conceal their identity and intentions. DoD ABIS supports all three objectives of the National Defense Strategy to increase lethality, enhance International Cooperation, and improve business practices.

The Defense Forensics and Biometrics Agency (DFBA), under the Provost Marshal General, fulfills the Secretary of the Army's Executive Agent (EA) responsibilities for DoD forensics and biometrics activities. In addition, DFBA is the proponent to establish and maintain Research, Development, Test & Evaluation (RDT&E) and information management support throughout the Armed Services and DoD. DFBA leads and facilitates the development, improvement, and implementation of efficiencies to developed and deployed biometric technologies for Combatant Commands (CCMDs), Services, DoD, and Agencies; facilitates transition of capabilities that contribute to the enhancement of the biometric community; increases Joint Service interoperability; and empowers the warfighter by improving operational effectiveness on the battlefield. The DFBA strategy pursues technology opportunities through scientific discovery and makes investments responsive to specific requirements identified by combat developers.

Justification:

FY 2024 funding in the amount of \$.797 million for Project DU2 will provide DFBA the ability to actively manage research efforts to address DoD biometrics objectives and requirements. DFBA supports the conduct of biometric and forensics activities (e.g. standards conformance and interoperability assessments), provides guidance to the research and development community, assists DoD acquisition organizations, and coordinates efforts with DoD and interagency stakeholders. This level of engagement promotes information sharing across the biometrics community to maximize utility of RDT&E efforts.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607665A / <i>Family of Biometrics</i> |
|---|---|

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 1.144 | 1.114 | 1.193 | - | 1.193 |
| Current President's Budget | 1.101 | 1.114 | 0.797 | - | 0.797 |
| Total Adjustments | -0.043 | 0.000 | -0.396 | - | -0.396 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.043 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -0.396 | - | -0.396 |

Change Summary Explanation

The reduction in FY24 RDT&E funding correlates to updated FY24 plans that aligns research initiatives and biometrics and forensics capability development with planned acquisition activities.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607665A / Family of Biometrics | | | | Project (Number/Name) DU2 / Management Agency | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| DU2: Management Agency | - | 1.101 | 1.114 | 0.797 | - | 0.797 | 0.589 | 0.830 | 0.633 | 0.519 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Defense Forensics and Biometrics Agency (DFBA), under the Provost Marshal General, fulfills the Secretary of the Army's Executive Agent (EA) responsibilities for all DoD forensics and biometrics activities. As the proponent, DFBA supports and provides oversight for Research, Development, Test & Evaluation (RDT&E) activities and information management throughout the Armed Services and DoD. DFBA leads and facilitates in the development of improvement and implementation of efficiencies to developed and deployed biometric technologies for Combatant Commands (CCMDs), Services, DoD, and Agencies; facilitates transition of capabilities that contribute to the enhancement of the biometric community; increases Joint Service interoperability; and empowers the warfighter by improving operational effectiveness on the battlefield. The DFBA strategy pursues technology opportunities through scientific discovery and makes investments responsive to specific requirements identified by combat developers.

Justification:

FY 2024 funding in the amount of \$.797 million for Project DU2 will provide DFBA the ability to actively manage research efforts to address DoD biometrics objectives and requirements. DFBA supports the conduct of biometric and forensics activities (e.g. standards conformance and interoperability assessments), provides guidance to the research and development community, assists DoD acquisition organizations, and coordinates efforts with DoD and interagency stakeholders. This level of engagement promotes information sharing across the biometrics community to maximize utility of RDT&E efforts.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: Development and Implementation of Biometric Technologies | 1.101 | 1.073 | 0.797 |
| Description: Biometrics and Forensics Technologies Research | | | |
| FY 2023 Plans: FY 2023 funding in the amount of \$1.192 million for Project DU2 enabled DFBA to support biometric and forensic research and development activities in alignment with DoD acquisition organizations. | | | |
| FY 2024 Plans: FY 2024 funding in the amount of \$.797 million for Project DU2 will provide DFBA the ability to actively manage research efforts to ensure scientific merit, feasibility, and DFBA objectives and requirements are met. DFBA supports the conduct of biometric and forensics activities (e.g. standards conformance and interoperability assessments), support to DoD acquisition organizations, and provision of subject matter expertise to DoD and non-DoD government stakeholders. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607665A / <i>Family of Biometrics</i> | Project (Number/Name) DU2 / <i>Management Agency</i> |
|--|---|--|

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| The reduction in FY24 RDT&E funding correlates to updated FY24 plans that better align research initiatives and biometrics and forensics capability development to planned acquisition activities. | | | |
| Title: SBIR/STTR Transfer | - | 0.041 | - |
| Description: Funding transferred in accordance with Title 15 USC §638 | | | |
| FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638 | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638 | | | |
| Accomplishments/Planned Programs Subtotals | 1.101 | 1.114 | 0.797 |

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

N/A

Remarks

D. Acquisition Strategy

DFBA uses a variety of existing contract vehicles to support the continued development of technology advancements for the fingerprint, face, iris, palm, DNA reference, and voice modalities. In addition to advancing the state of the art, these efforts enable DFBA to produce updated standards and architectures for the DoD Biometrics and Forensics Enterprise in support of interoperability objectives.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607665A / Family of Biometrics | Project (Number/Name) DU2 / Management Agency |
|--|--|---|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| SBIR/STTR Transfer | TBD | TBD : TBD | - | - | | 0.041 | | - | | - | | - | 0.000 | 0.041 | - |
| Subtotal | | | - | - | | 0.041 | | - | | - | | - | 0.000 | 0.041 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| DFBA RDTE efforts | MIPR | Various Activities : Various locations | 14.992 | 1.101 | Jun 2022 | 1.073 | Jun 2023 | 0.797 | | - | | 0.797 | Continuing | Continuing | - |
| Subtotal | | | 14.992 | 1.101 | | 1.073 | | 0.797 | | - | | 0.797 | Continuing | Continuing | N/A |

Remarks
Continuation of development of state of the art sensor capabilities enables the advancement of collection, match, share, and store capabilities. As sensors mature and take advantage of new spectra for biometric identification, the results from these capabilities enable DFBA to proactively advance the standards and architectures needed to use the advanced capabilities.

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | 14.992 | 1.101 | 1.114 | 0.797 | - | 0.797 | Continuing | Continuing | N/A |

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607665A / <i>Family of Biometrics</i> | Project (Number/Name) DU2 / <i>Management Agency</i> |
|--|---|--|

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| DFBA RDT&E Fingerprint, Face, Iris, Palm, and Voice | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DFBA RDTE Efforts | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DFBA Interoperability | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607665A / <i>Family of Biometrics</i> | Project (Number/Name) DU2 / <i>Management Agency</i> |
|--|---|--|

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| DFBA RDT&E Fingerprint, Face, Iris, Palm, and Voice | 1 | 2022 | 4 | 2026 |
| DFBA Interoperability | 1 | 2022 | 4 | 2026 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i> |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 125.851 | 152.312 | 177.197 | - | 177.197 | 138.120 | 138.287 | 139.762 | 141.321 | Continuing | Continuing |
| DV8: <i>Patriot Product Improvement</i> | - | 125.851 | 152.312 | 177.197 | - | 177.197 | 138.120 | 138.287 | 139.762 | 141.321 | Continuing | Continuing |

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Modernization Priorities in support of the PATRIOT surface to air missile system. PATRIOT is an integral part of the Integrated Air and Missile Defense (IAMD) Architecture and enables the incremental fielding of the IAMD Battle Command System (IBCS) capability for Army Air and Missile Defense Battalions.

The PATRIOT Product Improvement Program (PIP) provides for the upgrade of the PATRIOT System and the IAMD system through software improvements and individual materiel changes and upgrades to current force and IAMD-connected PATRIOT system components (interceptors, ground system equipment, launcher, and current radar) to address operational lessons-learned and necessary system performance improvements to include enhancements that support joint force interoperability and enable convergence with IBCS to ensure overmatch capability. As software and hardware improvements are developed, there is a continuing need for system level modeling, simulation, integration and testing. Modeling and Simulation (M&S) allow for performance assessment against emerging threats in a manner that is not practical to demonstrate with live fire flight tests alone due to cost, target availability, and range constraints. Flight testing is periodically required for validation of the modeling and simulation as well as satisfying Army Test and Evaluation Command/ Director, Operational Test and Evaluation (ATEC/DOTE) requirements of segment improvements.

This effort supports work with national agencies to evaluate, assess, and develop means to mitigate threat trends and specific threat developments potentially impacting system performance including effective detection, tracking, discrimination, and engagement. Specific improvements may be developed and fielded under this task if warranted. The effort maintains the Mission Tailoring Database, responding to immediate tactical concerns. Database updates are fielded between major software upgrades as necessary.

The PIP line also supports the identification, analysis, design, and test of materiel solutions to counter cyber security and electronic warfare shortcomings to all elements of the Lower Tier Battle Space.

FY 2024 base dollars in the amount of \$177.197 million support the continuance of critical software improvements for current force PATRIOT and Army IAMD, including Software Improvement for Threat Evolution, PAC-3 Seeker Software Improvement, Upper Tier Debris Mitigation, THAAD/PATRIOT Interoperability, Advanced Electronic Counter Measures (AECM), Combat ID enhancements, Tasks 2, 6, and 7 activities, program integration, modeling and simulation, acquisition of test assets and targets, Mobile Flight Mission Simulator (MFMS), PDB-8.1 and Patriot Component Software Build (PCSB) software, development and integration activities for Pacific Defense Initiative, Integrated Fires Architecture Fire Control Development, convergence with the IBCS and government and contractor support.

FY 2024 Pacific Defense Initiative dollars in the amount of \$46.545 million provides for development and integration activities.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i> |
|---|--|

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 125.932 | 152.312 | 140.999 | - | 140.999 |
| Current President's Budget | 125.851 | 152.312 | 177.197 | - | 177.197 |
| Total Adjustments | -0.081 | 0.000 | 36.198 | - | 36.198 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.081 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 36.198 | - | 36.198 |

Change Summary Explanation

The increase in FY 2024 Base dollars is in support of the increases in PATRIOT Product Improvement and the Pacific Defense Initiative, which was not in the previous PB's estimate.

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i> | | | | Project (Number/Name) DV8 / <i>Patriot Product Improvement</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| DV8: <i>Patriot Product Improvement</i> | - | 125.851 | 152.312 | 177.197 | - | 177.197 | 138.120 | 138.287 | 139.762 | 141.321 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The PATRIOT system includes a family of hardware, software, interceptors (PAC-2, Guidance Enhanced Missiles, PAC-3 and PAC-3 Missile Segment Enhancement) and Ground Support Equipment. PATRIOT system components (interceptors, launcher, and radar) are integrated with current force PATRIOT and Army Integrated Air and Missile Defense (IAMD) components, including IBCS. As PATRIOT system components software and hardware improvements are developed, there is a continuing need for system level modeling, simulation, integration and testing. Modeling and Simulation (M&S) allow for performance assessment against specific threats in a manner that is not practical to demonstrate with live fire flight tests alone due to cost, target availability, and range constraints. Flight testing is periodically required for M&S validation as well as satisfying ATEC/DOTE requirements of segment improvements.

-PATRIOT system components software and hardware improvements for threat evolution: Performs necessary analysis and development efforts to maintain PATRIOT system (interceptors, ground support equipment, and current radar) effectiveness against evolving threat technologies and capabilities, support convergence with the IBCS, and complete PATRIOT Component Software Builds (PCSB). This effort identifies evolving threats and threat characteristics that present a challenge to PATRIOT's current capabilities and develops initial concepts to maintain system effectiveness including detection, tracking, discrimination, and engagement relative to these threats. Additionally, evolving threat information is used to develop, integrate, and assess evolving lethality models in high-fidelity interceptor simulations supporting system level assessment of hit-to-kill and warhead interceptor performance.

-Advanced Electronic Counter Measures (AECM): This task investigates the implications of advanced technology Digital Radio Frequency Memory available on airborne platforms that enables new ECM techniques which could adversely degrade Air and Missile Defense System effectiveness. AECM efforts support PATRIOT system interceptors, ground support equipment, and current radar.

-Task 2: Implements improved ground system and interceptor capabilities (PATRIOT Advanced Capability-2/Guidance Enhanced Missiles, PATRIOT Advanced Capability-3, and Missile Segment Enhancement) to counter emerging Tactical Ballistic Missile threats.

-Task 6: Software improvements enhance ground support equipment and current radar discrimination of higher altitude Tactical Ballistic Missile Re-entry Vehicles (RVs) from associated objects to support the full engagement capabilities of the interceptor. Longer-range detection, track, and improved high-altitude discrimination are required to achieve the required lethality performance against the RV and to mitigate and reduce missile wastage against separation debris. This task leverages the signal processing capabilities of the Radar Digital Processor, and supports the high altitude engagements required by the PATRIOT Advanced Capability-3 (PAC-3) and PAC-3 Missile Segment Enhancement (MSE) missiles.

-Task 7: Performs analysis on existing and evolving Tactical Ballistic Missile (TBM) countermeasures to determine the effects on PATRIOT system effectiveness. Develops hardware and software concepts to address countermeasure effects to ensure the PATRIOT system maintains its effectiveness. Develops detailed system requirements to implement concepts; design/code/test software implementation leveraging Radar Digital Processor, Modernized Adjunct Processor, Enhanced Weapons Control Computer - Emulator and Flight Solution Computer-Redesign processing capabilities. Implements simulation-based concepts to define trade space and establish system requirements.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i> | Project (Number/Name) DV8 / <i>Patriot Product Improvement</i> |
|--|--|--|

- Combat ID Enhancements: Develop and implement improvements to the Radar Digital Processor-Capability Combat ID capabilities and additional Non-Cooperative Target Recognition techniques to further mitigate misclassification and fratricide risk, and to provide the Warfighter with improved situational awareness. This effort mitigates detection, tracking, and engagement errors on friendly targets.
- Upper-Tier Debris Mitigation (UTDM): Implements algorithms to mitigate system impacts of debris from Upper Tier intercepts associated with operating in the Ballistic Missile Defense System (BMDS) environment. Debris from Upper Tier intercepts can cause significant radar loading effects and the potential for erroneous engagements and missile wastage on debris.
- THAAD/PATRIOT Interoperability: Implements improvements to THAAD/PATRIOT Interoperability and addresses Joint Defense Network deficiencies that impact Tactical Ballistic Missile battle management and force/engagement operations. Efforts will be concentrated on joint, collaborative force operations (defense design and planning) and enhanced Tactical Digital Information Link - Joint interoperability.
- PAC-3 Seeker Software Improvements: Perform PAC-3 MSE Software improvements to address evolving and newly fielded Electronic Attack threats providing analysis, engineering, prototyping, testing, and tactical software implementation of improvements.
- Program Integration MSE Lockheed Martin Missile and Fire Control (LMMFC): This task support interceptor flight mission analysis, test missile preparation, flight mission interceptor integration, and range safety tasks allowing execution of required PATRIOT flight test activities.
- Mobile Flight Mission Simulator (MFMS) is a real-time system exerciser integrated with tactical ground hardware to simulate signals into the radar. The MFMS is part of the simulation and testing infrastructure required to support fielded PATRIOT.
- Development and Integration Activities in support of the Pacific Defense Initiative.
- Integrated Fires Architecture Fire Control Development: Perform Integrated Fire Architecture Fire Control Development improvements to address evolving and newly fielded threats providing analysis, engineering, prototyping, testing, and tactical software implementation of improvements.
- US Government and contractor support for PIP efforts supporting system interceptors, ground support equipment, and current radar provide studies and support to ensure the system and its components continue to evolve to defeat emerging threats.

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>Title: PATRIOT Product Improvement</p> <p>Description: Patriot Product improvement line provides continuous improvement to current force PATRIOT and Army IAMD to keep pace with and counter evolving and emerging threats.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> -Continue Software Improvement for Threat Evolution and AECM to address emerging threats and convergence with IBCS -Continue Combat ID enhancements to reduce fratricide potential -Continue Tasks 2, 6, and 7 activities to develop hardware and software to maintain PATRIOT system effectiveness in the field -Continue program development through system level modeling, simulation, integration and test support to address emerging threats and convergence with IBCS -Continue test program to include utilization of targets/threat simulators, flight simulator and modeling efforts to maintain system effectiveness -Continue test activities to support the TEMP | 125.851 | 146.753 | 177.197 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i> | Project (Number/Name) DV8 / <i>Patriot Product Improvement</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <ul style="list-style-type: none"> -Continue supporting Integrated Fires Testing -Continue Ballistic Missile Defense System (BMDS) Integration Testing -Continue PATRIOT program M&S laboratory infrastructure maintenance as well as the conduct of M&S for hardware/software capability improvements -U.S. Government and contractor support to ensure force effectiveness is maintained to keep pace with evolving and emerging threats -Continue IBCS convergence and PCSB effort -Continue PAC-3 Seeker Software Improvements to counter Electronic Attack Threats -Continue system integration activities, test and analysis, and threat analysis and modeling -Continue MSS-2 laboratory support for high fidelity seeker data collection, modeling and analysis <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> -Continue Software Improvement for Threat Evolution and AECM to address emerging threats and convergence with IBCS -Continue Combat ID enhancements to reduce fratricide potential -Continue Tasks 2, 6, and 7 activities to develop hardware and software to maintain PATRIOT system effectiveness in the field -Continue program development through system level modeling, simulation, integration and test support to address emerging threats and convergence with IBCS -Continue test program to include utilization of targets/threat simulators, flight simulator and modeling efforts to maintain system effectiveness -Continue supporting Integrated Fires Testing -Development and integration in support of the Pacific Defense Initiative -Continue Ballistic Missile Defense System (BMDS) Integration Testing -Continue PATRIOT program M&S laboratory infrastructure maintenance as well as the conduct of M&S for hardware/software capability improvements -U.S. Government and contractor support to ensure force effectiveness is maintained to keep pace with evolving and emerging threats -Continue IBCS convergence and PCSB effort -Continue PAC-3 Seeker Software Improvements to counter Electronic Attack Threats -Continue system integration activities, test and analysis, and threat analysis and modeling -Continue MSS-2 laboratory support for high fidelity seeker data collection, modeling and analysis <p>FY 2023 to FY 2024 Increase/Decrease Statement: The \$24.885 increase in funding provides for development and integration in support of the Pacific Defense Initiative.</p> | | | | |
| Title: SBIR/STTR Transfer | | - | 5.559 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i> | Project (Number/Name) DV8 / <i>Patriot Product Improvement</i> |
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| | | | |
|---|----------------|----------------|----------------|
| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
| <i>Description:</i> SBIR/STTR | | | |
| <i>FY 2023 Plans:</i> SBIR/STTR Transfer | | | |
| <i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding transferred in accordance with Title 15 USC §638. | | | |
| Accomplishments/Planned Programs Subtotals | 125.851 | 152.312 | 177.197 |

| | | | | | | | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-------------------|
| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
| | FY 2022 | FY 2023 | FY 2024 | FY 2024 | FY 2024 | | | | | | Cost To |
| Line Item | FY 2022 | FY 2023 | Base | OCO | Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Complete | Total Cost |
| • C50700: <i>Patriot Mods</i> | 287.479 | 253.689 | 212.247 | - | 212.247 | 179.513 | 573.119 | 502.009 | 208.218 | Continuing | Continuing |

Remarks
The improvements/enhancements developed through the PATRIOT Product Improvement Program (PIP) are interrelated with the hardware kits that are procured and installed under the Missile Procurement, Army (MIPA) appropriation's PATRIOT Mods program and maximizes PAC-3 MSE capabilities.

D. Acquisition Strategy
The design objective of the PATRIOT system was to provide a baseline system capable of modification to cope with continuing threat evolution. This program minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems. The PATRIOT Product Improvement Program upgrades the PATRIOT system and the Army IAMD system to address operational lessons learned, enhancements to joint force interoperability and communications, and other system performance improvements including detection, tracking, discrimination, and engagement to provide overmatch capability against the emerging threat. Upgrades are implemented through individual hardware and software materiel changes and fielded incrementally. This program encompasses several changes which will require the use of a variety of acquisition methods to develop, test, procure and field. Future hardware and software capabilities will be incorporated into Patriot Component Software Build (PCSB) releases and continue convergence efforts with IBCS. Developing, fabricating, and testing hit to kill surface to air missile and associated ground support equipment provides essential increases in battle space, accuracy, lethality and firepower to counter and destroy evolving air defense threats. These state-of-the-art capabilities and enhancements require ongoing demonstration through a series of flight tests and modeling and simulation activities to add survivability and resiliency in a denied environment. The PATRIOT system is a component of an integrated fires development effort that includes survivability, resiliency, and effectiveness improvements against advanced threats from near-peer adversaries. This effort includes integration with an evolving common fires mission command, common development tools and processes, and annual test and evaluation to provide data to support program assessments and progress toward closure of performance gaps.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607865A / Patriot Product Improvement | Project (Number/Name) DV8 / Patriot Product Improvement |
|--|---|---|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Government Program Management | MIPR | RSA, AL : RSA, AL | 18.472 | 5.474 | Jan 2022 | 4.515 | Jan 2023 | 4.515 | Jan 2024 | - | | 4.515 | Continuing | Continuing | - |
| U.S. Contracts | Various | Multiple : Multiple | 11.500 | 1.770 | Feb 2022 | 1.770 | Feb 2023 | 1.770 | Feb 2024 | - | | 1.770 | Continuing | Continuing | - |
| SBIR/STTR Transfer | TBD | Government : Government | - | - | | 5.559 | | - | | - | | - | 0.000 | 5.559 | - |
| Subtotal | | | 29.972 | 7.244 | | 11.844 | | 6.285 | | - | | 6.285 | Continuing | Continuing | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Software Improvement for Threat Evolution | Various | Multiple : Multiple | 72.026 | 6.109 | Jan 2022 | 6.529 | Jan 2023 | 8.374 | Jan 2024 | - | | 8.374 | Continuing | Continuing | - |
| Advanced Electronic Counter Measures (AECM) | Various | Multiple : Multiple | 117.187 | 7.286 | Jan 2022 | 13.643 | Jan 2023 | 14.808 | Jan 2024 | - | | 14.808 | Continuing | Continuing | - |
| Task 2 Non-Ballistic Tactical Ballistic Missile (TBM) | Various | Multiple : Multiple | 54.639 | 6.262 | Feb 2022 | 6.885 | Feb 2023 | 6.515 | Feb 2024 | - | | 6.515 | Continuing | Continuing | - |
| Task 6 Discrimination Improvements | Various | Multiple : Multiple | 53.639 | 4.779 | Feb 2022 | 3.807 | Feb 2023 | 4.072 | Feb 2024 | - | | 4.072 | Continuing | Continuing | - |
| Task 7 TBM Countermeasures / Effectors | Various | Multiple : Multiple | 56.200 | 8.276 | Feb 2022 | 16.923 | Feb 2023 | 13.541 | Feb 2024 | - | | 13.541 | Continuing | Continuing | - |
| Assured PNT | Various | Multiple : Multiple | 18.679 | 2.200 | | 2.400 | Jan 2023 | 4.524 | Feb 2024 | - | | 4.524 | Continuing | Continuing | - |
| Combat ID Enhancements | Various | Multiple : Multiple | 63.564 | 2.662 | Feb 2022 | 10.807 | Feb 2023 | 11.088 | Feb 2024 | - | | 11.088 | Continuing | Continuing | - |
| Tactical Telemetry Ground Station | Various | Multiple : Multiple | 0.250 | - | | 2.000 | Feb 2023 | 1.600 | Feb 2024 | - | | 1.600 | Continuing | Continuing | - |
| PAC-3 Seeker SW Improvement | Various | Multiple : Multiple | 34.889 | 2.649 | Feb 2022 | 2.000 | Feb 2023 | 6.408 | Feb 2024 | - | | 6.408 | Continuing | Continuing | - |
| CDCC and OGAs | MIPR | RSA : RSA | 0.800 | 0.836 | Oct 2021 | 0.850 | Oct 2022 | 0.850 | Oct 2023 | - | | 0.850 | Continuing | Continuing | - |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607865A / Patriot Product Improvement | Project (Number/Name) DV8 / Patriot Product Improvement |
|--|---|---|

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Program Integration MSE LMMFC | Various | LMMFC : Dallas, TX | 21.262 | 12.035 | Feb 2022 | 7.442 | Feb 2023 | 8.130 | Feb 2024 | - | | 8.130 | Continuing | Continuing | - |
| MSE/PAC-3 Raytheon | Various | Raytheon : Watham, Massachusetts | 7.900 | 4.600 | Feb 2022 | 2.500 | Feb 2023 | 2.710 | Feb 2024 | - | | 2.710 | Continuing | Continuing | - |
| SETA Contracts | Various | Multiple : Multiple | 2.800 | 2.900 | Feb 2022 | 0.918 | Feb 2023 | 1.010 | Feb 2024 | - | | 1.010 | Continuing | Continuing | - |
| Development and Integration for the Pacific Defense Initiative | TBD | Various : Various | - | - | | - | | 20.000 | Feb 2024 | - | | 20.000 | 0.000 | 20.000 | - |
| Development and Integration for the Pacific Defense Initiative PCSB 1.0 | TBD | Various : Various | - | - | | - | | 26.340 | Feb 2024 | - | | 26.340 | 0.000 | 26.340 | - |
| Subtotal | | | 503.835 | 60.594 | | 76.704 | | 129.970 | | - | | 129.970 | Continuing | Continuing | N/A |

Remarks

The contract method type Sole Source/Various is Fixed Price Level of Effort which includes Cost Plus Fixed Fee for material, ODC, and travel.

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| CCDC and Other Govt Agencies | MIPR | RDEC and OGA'S : RSA, AL | 13.051 | 7.695 | Jan 2022 | 5.255 | Jan 2023 | 3.370 | Jan 2024 | - | | 3.370 | Continuing | Continuing | - |
| Targets/Threat Simulation | MIPR | Various : Huntsville, AL | 26.396 | 22.485 | Jan 2022 | 32.397 | Jan 2023 | 19.664 | Jan 2024 | - | | 19.664 | Continuing | Continuing | - |
| Modeling and Simulation | MIPR | Various : Huntsville, AL | 3.022 | 3.700 | Jan 2022 | 3.700 | Jan 2023 | 3.283 | Jan 2024 | - | | 3.283 | Continuing | Continuing | - |
| Contractor T&E | Various | Multiple : Various | 8.328 | 7.818 | Jan 2022 | 5.655 | Jan 2023 | 3.355 | Jan 2024 | - | | 3.355 | Continuing | Continuing | - |
| Other T&E | MIPR | Various : WSMR, NM | 4.600 | 5.978 | Jan 2022 | 10.843 | Feb 2023 | 1.590 | Feb 2024 | - | | 1.590 | Continuing | Continuing | - |
| Mobile Flight Mission Simulator | SS/FPIF | Raytheon : Massachusetts | 1.000 | 1.427 | Feb 2022 | 1.166 | Feb 2023 | 4.400 | Feb 2024 | - | | 4.400 | Continuing | Continuing | - |
| PDB-8.1/PCSB | MIPR | Various : WSMR, NM | 8.215 | 8.910 | Nov 2021 | 4.748 | Nov 2022 | 5.280 | Nov 2023 | - | | 5.280 | Continuing | Continuing | - |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607865A / Patriot Product Improvement | Project (Number/Name) DV8 / Patriot Product Improvement | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Software Build | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Advanced Electronic Counter Measures (AECM) | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Software Improvement for Threat Evolution | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Combat ID Enhancements | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Task 2 Non-Ballistic Tactical Ballistic Missile (TBM) | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Task 6 Discrimination Improvements | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Task 7 TBM Countermeasures / Effectors | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Assured PNT | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PAC-3 Seeker Software Improvements | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PATRIOT System Testing, Integration and Evaluation | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Program Development, Integration, and Support | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Testing, Targets, Modeling and Simulation | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Developmental/Operational Flight Testing | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607865A / Patriot Product Improvement | Project (Number/Name) DV8 / Patriot Product Improvement |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|-----------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Follow-On Flight Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PDB 8.1 Material Release | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCSB V 1.0 Material Release | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PCSB v 2.0 Material Release | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PDB 8.1/PCSB Fieldings | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0607865A / <i>Patriot Product Improvement</i> | Project (Number/Name) DV8 / <i>Patriot Product Improvement</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Software Build | 4 | 2005 | 4 | 2028 |
| Advanced Electronic Counter Measures (AECM) | 1 | 2014 | 4 | 2028 |
| Software Improvement for Threat Evolution | 1 | 2014 | 4 | 2028 |
| Combat ID Enhancements | 1 | 2014 | 4 | 2028 |
| Task 2 Non-Ballistic Tactical Ballistic Missile (TBM) | 1 | 2015 | 4 | 2028 |
| Task 6 Discrimination Improvements | 1 | 2014 | 4 | 2028 |
| Task 7 TBM Countermeasures / Effectors | 1 | 2015 | 4 | 2028 |
| Assured PNT | 1 | 2020 | 4 | 2027 |
| PAC-3 Seeker Software Improvements | 2 | 2020 | 4 | 2028 |
| PATRIOT System Testing, Integration and Evaluation | 1 | 2016 | 4 | 2028 |
| Program Development, Integration, and Support | 1 | 2016 | 4 | 2028 |
| Testing, Targets, Modeling and Simulation | 1 | 2016 | 4 | 2028 |
| Developmental/Operational Flight Testing | 3 | 2020 | 4 | 2028 |
| Follow-On Flight Testing | 4 | 2022 | 4 | 2028 |
| PDB 8.1 Material Release | 4 | 2023 | 4 | 2023 |
| PCSB V 1.0 Material Release | 3 | 2025 | 3 | 2025 |
| PCSB v 2.0 Material Release | 3 | 2028 | 3 | 2028 |
| PDB 8.1/PCSB Fieldings | 4 | 2023 | 4 | 2028 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) |
|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 24.556 | 19.311 | 42.177 | - | 42.177 | 35.185 | 4.104 | 4.147 | 4.194 | 0.000 | 133.674 |
| EF7: Precision Fires Warrior Dismounted & Mounted | - | 2.913 | 3.384 | 4.429 | - | 4.429 | 3.081 | 2.712 | 2.741 | 2.772 | 0.000 | 22.032 |
| EF8: AFATDS Increment 1 | - | 21.643 | 15.927 | 37.748 | - | 37.748 | 32.104 | 1.392 | 1.406 | 1.422 | 0.000 | 111.642 |

A. Mission Description and Budget Item Justification

Fire Support Command and Control (FSC2) funding lines directly align to the Army Long Range Precision Fires (LRPF) and Network modernization priorities.

Fire support is the effect of lethal and non-lethal weapons (fires) that directly support land, maritime, amphibious and special operations forces to engage enemy forces, combat formations and facilities in pursuit of tactical and operational objectives. FSC2 systems automate the planning and execution of fire support operations so appropriate munitions are paired with suitable weapons or group of weapons to adequately cover targets.

Precision Fires-Dismounted/Mounted (PF-D/M) provides the dismounted and mounted Forward Observer (FO) and Fire Support Teams (FISTs) the ability to execute fire missions. PF-D is a software application operating on the Nett Warrior End User Device (EUD). It provides the dismounted FO and FISTs the ability and functionality to accurately and rapidly locate ground targets and digitally process a Call for Fires, which is the act of requesting a fire mission against the identified ground target. PF-D answers the Mobile/Handheld Computing Environment requirement that all handheld applications reside on the Nett Warrior EUD. PF-M replaces the Lightweight Forward Entry Device's (LFED) Forward Observer Software (FOS) at the maneuver company FIST, allowing them to identify ground targets and request fire missions. PF-M answers the Mounted Computing Environment (MCE) requirement and will reside on the Mounted Family of Computing Systems (MFoCS) computer.

Advanced Field Artillery Tactical Data System (AFATDS) provides the Army and Marine Corps automated fire support command, control and communications and supports Hypersonics and LRPF capabilities by 1) serving as the key sensor-to-shooter link for the Army and Marine Corps; and 2) providing fully automated support for planning, coordinating, controlling and executing fires and effects. The Long-Range Precision Fires (LRPF) capabilities include Extended Range Canon Artillery (ERCA), Extended Range Guided Multiple Launch Rocket System (ER-GMLRS), Precision Strike Missile System (PrSM), Joint Targeting support to multi-domain operations, and emerging sensor-to-shooter initiatives.

AFATDS is used to plan, execute, and deliver lethal and non-lethal effects and provides Joint/Coalition Situational Awareness for fires execution and mission management. The system interoperates and integrates with over 80 different battlefield systems, including Navy and Air Force command and control weapons systems. As a member of the Artillery System Cooperation Agreement (ASCA), AFATDS is interoperable with coalition partner fire support systems. The program is currently fielding the AFATDS 6.8 baseline, which automates the planning, coordination, and control of all fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopters, offensive electronic warfare, fire support meteorological systems, forward observers, and fire support radars).

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0203728A / <i>Joint Automated Deep Operation Coordination System (JADOCs)</i> |
|---|--|

AFATDS 7 transitions from 1990's AFATDS code to a data centric capability postured for deployment in a variety of hosting environments that will enhance kill chain responsiveness, integrate with Command Post Computing Environment (CPCE), improve cybersecurity posture and optimize future upgrades. It will address requirements to enable hypersonic capabilities and incorporates LRPF capabilities to include ERCA, ER-GMLRS, PrSM enhancements. The modernization effort will overhaul the intuitive user interface based on Soldier feedback, establish a data bridge with CPCE, enable high tempo counter fire operations, and incorporate embedded training. AFATDS 7 also incorporates Link 16 enhancements and additional digital radios.

FY 2024 funding in the amount of \$4.429 million is allocated to Project EF7: Precision Fires Warrior & Dismounted (PF-D/M). FY 2024 funding will be utilized for continued development of PF-D/M Block 3 capabilities onto target computing environments, including Net-enabled weapons capability with joint services. Funding also supports alignment with Nett Warrior architecture changes for PF-D and adapting the PF-D software to build the PF-M baseline to integrate with Mounted Mission Command-Software (MMC-S) and operate on the MFoCS within the MCE.

FY 2024 funding in the amount of \$37.748 million is allocated to Project EF8: AFATDS Increment 1 and will be used for AFATDS 7 software modernization to support hosting environment flexibility and improve cybersecurity posture, as well as enhancements to enable hypersonic capabilities and incorporate LRPF munition improvements supporting ERCA, ER-GMLRS, PrSM operations.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 25.489 | 19.329 | 4.931 | - | 4.931 |
| Current President's Budget | 24.556 | 19.311 | 42.177 | - | 42.177 |
| Total Adjustments | -0.933 | -0.018 | 37.246 | - | 37.246 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.933 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 37.246 | - | 37.246 |
| • FFRDC Transfer | - | -0.018 | - | - | - |

Change Summary Explanation

FY 2024 funding increase reflects modernization efforts in conjunction with development to satisfy hypersonic/LRPF requirements.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | | | | Project (Number/Name) EF7 / Precision Fires Warrior Dismounted & Mounted | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| EF7: Precision Fires Warrior Dismounted & Mounted | - | 2.913 | 3.384 | 4.429 | - | 4.429 | 3.081 | 2.712 | 2.741 | 2.772 | 0.000 | 22.032 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Precision Fires-Dismounted/Mounted (PF-D/M) provides the dismounted and mounted Forward Observer (FO) and Fire Support Teams (FISTs) the ability to execute fire missions. PF-D, a software application hosted on the Nett Warrior End User Device (EUD), provides the dismounted FO and FISTs the ability and functionality to accurately and rapidly locate ground targets and digitally process a Call for Fires. This action requests a fire mission against the identified ground target. PF-D answers the Mobile/Handheld Computing Environment requirement that all handheld applications reside on the Nett Warrior EUD. PF-M replaces the Lightweight Forward Entry Devices (LFED) Forward Observer Software (FOS) at the maneuver company FIST allowing them to identify ground targets and request fire missions. PF-M answers the Mounted Computing Environment (MCE) requirement and will reside on the Mounted Family of Computing Systems (MFOCS) computer.

FY 2024 funding of \$4.429 million will be utilized for continued development of Block 3 capabilities onto target computing environments, including net-enabled weapons capability with joint services. Funding also supports alignment with Nett Warrior architecture changes for PF-D and adapting the PF-D software to integrate with Mounted Mission Command-Software (MMC-S) and operate on the MFOCS within the MCE on fire support vehicles.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: Program Management Support Costs for PF-D/M | 0.149 | 0.168 | 0.175 |
| Description: Program support for Precision Fires Dismounted/Mounted (PF-D/M) software development efforts. This includes contractor and matrix support. | | | |
| FY 2023 Plans: Will provide Matrix and Contractor/SETA support to PMO for all aspects of the PF-D/M program including requirements development, software development efforts, logistics and business management support. | | | |
| FY 2024 Plans: Continue to provide Matrix and Contractor/SETA support to Project Management Office for all aspects of the PF-D/M program including requirements decomposition, software development efforts of Block 3, logistics and business management support. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase supports planned lifecycle of the effort. | | | |
| Title: PF-D/M Software Development | 2.764 | 2.773 | 3.522 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF7 / Precision Fires Warrior Dismounted & Mounted |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>Description: PF-D/M Software Development.</p> <p>FY 2023 Plans: Development of PF-D/M Block 3 capabilities onto target Computing Environments. Alignment with Nett Warrior architecture changes for Dismounted efforts and adapting PF-D software to integrate with MMC-S and operate within the Mounted Computing Environment.</p> <p>FY 2024 Plans: Modifications of PF-D software to align with Nett Warrior architecture changes for hosting on the EUD. Complete development of PF-M software for integration with MMC-S for hosting on the MFOCS on fire support platforms. Incorporate necessary changes to accommodate net-enabled weapons capability for joint services.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase due to additional developmental support for two fire support software baselines and address net-enabled weapons capabilities.</p> | | | |
| <p>Title: Testing for PF-D/M</p> <p>Description: Conduct and Support Army Testing Activities for PF-D/M.</p> <p>FY 2024 Plans: Conduct Production Qualification and Functional Quality Testing (developmental), customer test (OT) and Army Interoperability Certification testing of PFDM 3.0 software.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase supports three test events planned for FY 2024.</p> | - | - | 0.400 |
| <p>Title: SBIR/STTR/FFRDC Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC §638.</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638.</p> | - | 0.124 | - |
| <p>Title: Training (Interactive Electronic Technical Manuals)</p> <p>FY 2023 Plans:</p> | - | 0.319 | 0.332 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF7 / Precision Fires Warrior Dismounted & Mounted |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Administrator Interactive Electronic Technical Manuals (IETM) for Precision Fires-Mounted (PF-M) per Mil-Std 40051-1C. FY 2024 Plans: Additions and modifications to Administrator Interactive Electronic Technical Manuals (IETM) for Precision Fires-Mounted (PF-M). FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase supports planned lifecycle of the effort. | | | |
| Accomplishments/Planned Programs Subtotals | 2.913 | 3.384 | 4.429 |

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

| <u>Line Item</u> | <u>FY 2022</u> | | <u>FY 2024</u> | <u>FY 2024</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> | |
|--|----------------|------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-------------------|------------|
| | <u>Base</u> | <u>OCO</u> | <u>Base</u> | <u>OCO</u> | <u>Total</u> | <u>Base</u> | <u>OCO</u> | <u>Total</u> | <u>Complete</u> | <u>Total Cost</u> | |
| • BZ9851: POCKET FORWARD ENTRY DEVICE (PFED) | 2.648 | 2.140 | 2.213 | - | 2.213 | 6.869 | 2.299 | 2.300 | 2.302 | Continuing | Continuing |

Remarks

D. Acquisition Strategy

Precision Fires-Dismounted/Mounted (PF-D/M) is an Acquisition Category III program established to satisfy requirements captured in the Pocket-sized Forward Entry Device (PFED) Inc 2 Capability Production Document (CPD), which was approved as an IT Box requirement. The Milestone B approved in 2015 codified a blocking approach to provide structure for incremental capability development over time. PF-D/M is developed in partnership with a government integrator.

PF-D/M Block 1 provided the baseline capability upon which subsequent blocks will be built. It leveraged Army Science and Technology (S&T) investment by transitioning a software application that was developed and used in proponent experimentation events (e.g., Army Expeditionary Warrior Experiment (AEWE) and Bold Quest). Upon a successful Milestone B decision in FY15, this software application transitioned to PM Mission Command (PMMC) to conduct all Army developmental and operational test and evaluation requirements. With both the Mobile/Handheld and Mounted computing environments migrating toward a technical foundation that operates on an Android Tactical Assault Kit (ATAK) software baseline, the PF-D software, operated on the Nett Warrior End User Device was further adapted to coalesce to a new common operating environment. Reusable components and services were taken from the S&T baseline to help satisfy operational requirements and enhance the end user experience provided within the ATAK infrastructure.

PF-D/M Block 2 focused on transitioning from a standalone Android application to a plugin on the ATAK architecture. Capabilities include Sensor Interoperability, and Digitally Aided Close Air Support over the Link 16 network. A Full Deployment Decision for Block 2 was approved with the Acquisition Decision Memorandum signed in Feb 2022.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / <i>Joint Automated Deep Operation Coordination System (JADOCS)</i> | Project (Number/Name) EF7 / <i>Precision Fires Warrior Dismounted & Mounted</i> |
| <p>PF-D/M Block 3 encompasses the continuation of PF-D software with additional capabilities for the handheld environment, and began the development of PF-M by adapting the PF-D software to the mounted environment. PF-M replaces the Lightweight Forward Entry Devices (LFED) Forward Observer Software (FOS) at the maneuver company Fire Support Team and is different from PF-D in that it resides on the mounted platforms and leverages the vehicle's interfaces. The first generation of PF-M (Block 3) will reside on the Mounted Family of Computer Systems computer to meet the Mounted Computing Environment directive. Like Nett Warrior, PdM Joint Battle Command - Platform (JBC-P) will provide an ATAK-based infrastructure called Mounted Mission Command - Software to run the PF-M capabilities as a plugin. The PF-M will continue to be developed in partnership with a government integrator and will reuse previously developed components available under the ATAK architecture to serve as the mounted baseline to satisfy mission requirements. A Block 3 Build Decision was approved in Nov 2021.</p> <p>The PFED Inc 2 CPD was approved under the IT Box construct and approval authority for future requirements that fall within the CPD's scope was delegated to the Fires Support Command and Control (FSC2) Tactical Software Requirements Governance Board. Tactical Software Change Requests (TSCRs) will be used to capture future requirements to be satisfied in follow-on PF-D/M blocks.</p> | | |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF7 / Precision Fires Warrior Dismounted & Mounted |
|--|---|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Program Management Support for PF-D/M (Matrix) | IA | Various Mix Orgs (Govt) : APG, MD | 0.610 | 0.149 | | 0.168 | Feb 2023 | 0.175 | Feb 2024 | - | | 0.175 | 0.000 | 1.102 | Continuing |
| Program Management Support for PF-D/M (SETA) | C/FFP | CACI : APG, MD | 0.650 | - | | - | | - | | - | | - | 0.000 | 0.650 | Continuing |
| SBIR/STTR Transfer | TBD | Various : Various | - | - | | 0.124 | | - | | - | | - | 0.000 | 0.124 | - |
| Subtotal | | | 1.260 | 0.149 | | 0.292 | | 0.175 | | - | | 0.175 | 0.000 | 1.876 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| PF-D/M Software Development efforts | IA | DEVCOM C5ISR, ESI : APG, MD | 19.382 | 2.764 | | 2.773 | Oct 2022 | 3.532 | Oct 2023 | - | | 3.532 | Continuing | Continuing | Continuing |
| Training (Interactive Electronic Technical Manuals (IETM)) | IA | TYAD : Tobyhanna, PA | - | - | | 0.319 | | 0.322 | | - | | 0.322 | 0.000 | 0.641 | - |
| Subtotal | | | 19.382 | 2.764 | | 3.092 | | 3.854 | | - | | 3.854 | Continuing | Continuing | N/A |

Remarks
Increase due to additional developmental support for two fire support software baselines and address joint service requirements.

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Test Support (Engineering Release) | Various | Testing : Various | 1.761 | - | | - | | 0.400 | Oct 2023 | - | | 0.400 | Continuing | Continuing | Continuing |
| Subtotal | | | 1.761 | - | | - | | 0.400 | | - | | 0.400 | Continuing | Continuing | N/A |

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|---|--------------------|----------------|---|----------------|--|---------------------|--|--------------------|--|----------------------|-------------------------|-------------------|---------------------------------|
| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | Date: March 2023 | | | | | | |
| Appropriation/Budget Activity 2040 / 7 | | | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | | | | Project (Number/Name) EF7 / Precision Fires Warrior Dismounted & Mounted | | | | | | |
| | Prior Years | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
| Project Cost Totals | 22.403 | 2.913 | | 3.384 | | 4.429 | | - | | 4.429 | Continuing | Continuing | N/A |

Remarks
 Increase in T&E supports three test events planned for FY 2024.

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF7 / Precision Fires Warrior Dismounted & Mounted |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| PF-D SW Development Block 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Build Decision (BD) Block 3 | ▲ 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Full Deployment Decision Block 2 | | | | | ▲ 2 | | | | | | | | | | | | | | | | | | | | | | | |
| PF-D/M Block 3 Software (SW) Development/Integration | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PF-D/M Block 3 DT/OT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PF-D/M Block 3 AIC | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PF-D/M Block 3 Full Deployment Decision (FDD) | | | | | | | | | | | | | ▲ 3 | | | | | | | | | | | | | | | |
| PF-D/M Future Capability Block Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF7 / Precision Fires Warrior Dismounted & Mounted |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Milestone B | 3 | 2015 | 3 | 2015 |
| Limited Deployment Decision (LDD) | 4 | 2016 | 4 | 2016 |
| Operational Test (OT) | 4 | 2016 | 4 | 2016 |
| Full Deployment Decision (FDD) | 2 | 2017 | 2 | 2017 |
| Initial Operational Capability (IOC) | 3 | 2017 | 3 | 2017 |
| Build Decision (BD) Block 2 | 2 | 2018 | 2 | 2018 |
| PF-D SW Development Block 2 | 2 | 2019 | 1 | 2022 |
| LDD Block 2 | 2 | 2021 | 2 | 2021 |
| Operational Test and Evaluation (OT&E) Block 2 | 3 | 2021 | 3 | 2021 |
| Build Decision (BD) Block 3 | 1 | 2022 | 1 | 2022 |
| Full Deployment Decision Block 2 | 2 | 2022 | 2 | 2022 |
| PF-D/M Block 3 Software (SW) Development/Integration | 1 | 2022 | 2 | 2024 |
| PF-D/M Block 3 DT/OT | 1 | 2024 | 3 | 2024 |
| PF-D/M Block 3 AIC | 4 | 2024 | 4 | 2024 |
| PF-D/M Block 3 Full Deployment Decision (FDD) | 2 | 2025 | 2 | 2025 |
| PF-D/M Future Capability Block Development | 2 | 2024 | 4 | 2028 |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF8 / AFATDS Increment 1 |
|--|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|----------------------------|-------------------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| | EF8: AFATDS Increment 1 | - | 21.643 | 15.927 | 37.748 | - | 37.748 | 32.104 | 1.392 | 1.406 | 1.422 | 0.000 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Fire Support Command and Control (FSC2) funding directly aligns to the Army Long Range Precision Fires (LRPF) and Army Network modernization priorities.

Advanced Field Artillery Tactical Data System (AFATDS) provides the Army and Marine Corps automated fire support command, control and communications and supports Army Hypersonics and LRPF capabilities by 1) serving as the key sensor-to-shooter link for the Army and Marine Corps; and 2) providing fully automated support for planning, coordinating, controlling and executing fires and effects. The LRPF capabilities include Extended Range Canon Artillery (ERCA), Extended Range Guided Multiple Launch Rocket System (ER-GMLRS), Precision Strike Missile System (PrSM), Joint Targeting support to multi-domain operations, and emerging sensor-to-shooter initiatives.

AFATDS is used to plan, execute, and deliver lethal and non-lethal effects and provides Joint/Coalition Situational Awareness for fires execution and mission management. The system interoperates and integrates with over 80 different battlefield systems, including Navy and Air Force command and control weapons systems. As a member of the Artillery System Cooperation Agreement (ASCA), AFATDS is interoperable with coalition partner fire support systems. The program is currently fielding the AFATDS 6.8 baseline, which automates the planning, coordination, and control of all fire support assets (field artillery, mortars, close air support, naval gunfire, attack helicopters, offensive electronic warfare, fire support meteorological systems, forward observers, and fire support radars).

AFATDS 7 transitions from 1990's AFATDS code to a data centric capability postured for deployment in a variety of hosting environments that will enhance kill chain responsiveness, integrates with Command Post Computing Environment (CPCE), improves cyber security posture and optimizes future upgrades. As the modernization effort matures, the AFATDS 7 software will address requirements to enable hypersonic capabilities and incorporate LRPF capabilities, including ERCA, ER-GMLRS, PrSM enhancements. The modernization effort overhauls the system to provide an intuitive user interface based on Soldier feedback, establish a data bridge with CPCE, enable high tempo counter fire operations, and incorporate embedded training. AFATDS 7 also incorporates Link 16 enhancements and additional digital radios.

FY 2024 funding in the amount of \$37.748 million will be used for AFATDS 7 software modernization to support hosting environment flexibility and improve cybersecurity posture, as well as enhancements to enable hypersonic and LRPF munition improvements supporting ERCA, ER-GMLRS, PrSM, as well as address the user interface and embedded training.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| Title: AFATDS software development efforts | 17.410 | 13.018 | 27.392 |
| Description: Development of AFATDS 7 software. | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF8 / AFATDS Increment 1 | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>FY 2023 Plans: Complete development of AFATDS 7.0 capabilities, specifically, code modernization, cyber enhancements, Link 16 implementation, and some User Interface improvements.</p> <p>Because of the stop work order and program restructure, testing scheduled to occur in FY 2023 shifted to FY 2024 and the funds allotted to testing (\$6.600 million) was realigned to software development.</p> <p>FY 2024 Plans: Develop modernized software with the flexibility to accommodate a variety of hosting environments (e.g., laptop, server, cloud, etc.) to enable hypersonic capabilities and incorporates Long Range Precision Fires (LRPF) capabilities to include Extended Range Canon Artillery (ERCA), Extended Range Guided Multiple Launch Rocket System (ER-GMLRS), Precision Strike Missile System (PrSM) enhancements. Development will also address user interface upgrades based on Soldier feedback, a data bridge with CPCE, Link 16/digital radio enhancements, and Artillery Systems Cooperation Activities (ASCA) needs and incorporate embedded training while enabling high tempo counter fire operations.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase due to significant modernization efforts in conjunction with development to satisfy hypersonic/LRPF requirements and hosting in multiple environments.</p> | | | | |
| <p>Title: AFATDS 7 Test events Description: AFATDS 7 Test Support.</p> <p>FY 2024 Plans: Conduct development, internal verification & validation, Army Interoperability Certification testing and begin operational testing (OT). The program has a well-established internal verification and validation process which will be conducted while the software is being developed to verify the design, validate issues and/or identify new issues to be addressed to ensure stable designs are carried into the formal developmental testing and OT.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding Increase reflects efforts of developmental testing and interoperability activities scheduled to begin in FY 2024.</p> | | - | - | 6.600 |
| <p>Title: SBIR/STTR Transfer Description: Funding transferred in accordance with Title 15 USC §638.</p> <p>FY 2023 Plans:</p> | | - | 0.581 | - |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF8 / AFATDS Increment 1 |
|--|---|--|

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| Funding transferred in accordance with Title 15 USC §638. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638. | | | |
| Title: Program Management Costs for AFATDS software development | 4.233 | 2.328 | 3.756 |
| Description: Provide program support for AFATDS software development efforts. | | | |
| FY 2023 Plans: Continue to provide PMO support (Matrix, and Systems Engineering and Technical Assistance (SETA)) for all aspects of the AFATDS program including requirements analysis, software development efforts, testing, logistics and business management support. | | | |
| FY 2024 Plans: Program Management Support to include: Matrix and Systems Engineering and Technical Assistance (SETA) for all aspects of the AFATDS program including requirements analysis, software development efforts, testing, logistics and business management support. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Increase due to additional program management support required to execute a dual-path development approach--software modernization and satisfying Long Range Precision Fires requirements -- and assure software can be hosted in various environments. | | | |
| Accomplishments/Planned Programs Subtotals | 21.643 | 15.927 | 37.748 |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|---------------------------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| • B28620: MOD OF IN-SVC EQUIP, AFATDS | 7.205 | 7.536 | 7.839 | - | 7.839 | 12.288 | 0.899 | 0.900 | 0.900 | 0.000 | 37.567 |

Remarks

D. Acquisition Strategy
AFATDS 7-based on the Jun 2011 Joint Requirements Oversight Council (JROC) validated Capability Definition Document (CDD)-will modernize the underlying architecture of AFATDS leveraging current software development methodologies (e.g., agile) and techniques (i.e., DEVSECOPS) which will create baseline code that is easier to sustain than the legacy software. On 13 May 2015, the Army Acquisition Executive (AAE) approved AFATDS as a modification to the existing program,

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | Date: March 2023 |
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| | | |
|--|--|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / <i>Joint Automated Deep Operation Coordination System (JADOCS)</i> | Project (Number/Name) EF8 / <i>AFATDS Increment 1</i> |
|--|--|---|

continuing it as an Acquisition Category (ACAT) II defense acquisition program (DAP) (non-Automated Information System) with PEO C3T oversight. The AFATDS 7 is a software only modification/modernization effort that will be hosted on already fielded hardware used for legacy AFATDS software and is being postured for hosting to a wide variety of environments (e.g., laptop, server, cloud, etc.) in accordance with user needs at different echelons.

AFATDS 7 will modernize the underlying architecture of AFATDS leveraging current software development methodologies (e.g., agile) and techniques (i.e., DEVSECOPS) which will create baseline code that is easier to sustain than the legacy software. This modernization effort will eliminate cyber vulnerabilities, update back-end code to a modern language, improve the user interface to reduce user workload and include embedded training to enable on-demand refresher training on key system capabilities for Soldiers 24/7/365. By migrating to an agile development approach and releasing software on an annual basis, the program will be more responsive to emerging hypersonic and Long Range Precision Fires (LRPF) needs/munitions. Additionally, it maximizes flexibility to receive technology insertions and expand hosting options for new munitions.

The AFATDS 7 contract was awarded in 2017 via full and open competition; however, due to continual vendor schedule delays and projected cost overruns associated with the estimate at completion, a stop work order was issued in Jan 2023. An alternate strategy has been implemented to continue software modernization using a government developer. The schedule (R-4) reflects the changes resulting from this situation. This new approach, which will combine the modernization efforts with hypersonics/LRPF enhancements and is intended to support annual deliveries of modernized capabilities that address emerging munitions and firing platforms.?

The AFATDS CDD was approved in 2011. JROC Memorandum (JROCM) 083-11 provided an additional flexibility by delegating approval authority for identifying and approving future capability requirements that fall within the CDD's scope to an established governance organization, Fires Support Command and Control (FSC2) Tactical Software Requirements Governance Board. This requirements strategy promotes evolutionary development by facilitating requirement refinement and the incorporation of the latest technology.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF8 / AFATDS Increment 1 |
|--|---|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Program Management Support for AFATDS (Matrix) | IA | Various Matrix Orgs (Govt) : Aberdeen PG, MD | 5.260 | 1.011 | | 0.612 | Oct 2022 | 1.503 | Oct 2023 | - | | 1.503 | 0.000 | 8.386 | - |
| Program Management Support for AFATDS (SETA Contr) | C/FFP | CACI : Aberdeen PG, MD | 3.757 | 3.222 | Mar 2022 | 1.716 | Mar 2023 | 2.253 | Mar 2024 | - | | 2.253 | 0.000 | 10.948 | - |
| SBIR/STTR Transfer | TBD | Various : Various | - | - | | 0.581 | | - | | - | | - | 0.000 | 0.581 | - |
| Subtotal | | | 9.017 | 4.233 | | 2.909 | | 3.756 | | - | | 3.756 | 0.000 | 19.915 | N/A |

Remarks
Increase due to additional program management support required for to execute a dual-path development approach-software modernization and satisfying Long Range Precision Fires requirements.

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|-----------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Software Development of AFATDS Version 7.0 | IA | DEVCOM AC : Picatinny, NJ | 148.817 | 17.410 | | 13.018 | Oct 2022 | - | | - | | - | 0.000 | 179.245 | - |
| Software Modernization/ Development | IA | DEVCOM AC : Picatinny Arsenal, NJ | - | - | | - | | 27.392 | Oct 2023 | - | | 27.392 | 0.000 | 27.392 | - |
| Subtotal | | | 148.817 | 17.410 | | 13.018 | | 27.392 | | - | | 27.392 | 0.000 | 206.637 | N/A |

Remarks
Increase due to significant effort needed to address software modernization efforts in conjunction with development to satisfy hypersonic/LRPF requirements and hosting in multiple environments.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF8 / AFATDS Increment 1 |
|--|---|--|

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Developmental Testing for AFATDS v7.x | IA | Multiple Govt Test Agencies (ATEC, ATC, OTC) : Multiple | 0.750 | - | | - | | 1.980 | Oct 2023 | - | | 1.980 | 0.000 | 2.730 | - |
| Internal Verification and Validation of AFATDS 7.x requirements | MIPR | Engility : Various Locations | 2.266 | - | | - | | 4.620 | | - | | 4.620 | 0.000 | 6.886 | - |
| Subtotal | | | 3.016 | - | | - | | 6.600 | | - | | 6.600 | 0.000 | 9.616 | N/A |

Remarks
Increase based on program restructure, which realigned test activities to FY 2024.

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|--------------------|----------------|----------------|---------------------|--------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Project Cost Totals | 160.850 | 21.643 | 15.927 | 37.748 | - | 37.748 | 0.000 | 236.168 | N/A |

Remarks

UNCLASSIFIED

| | | | |
|--|---|--|-------------------------|
| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF8 / AFATDS Increment 1 | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Advanced Field Artillery Tactical Data System (AFATDS) v... | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x Developmental Testing (DT) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x Army Interoperability Certification (AIC) te... | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x Operational Testing (OT) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x Joint testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x Fielding | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x First Unit Equipped (FUE) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.1 Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.1 DT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.1 AIC testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.1 OT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.1 Joint testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

UNCLASSIFIED

| | | |
|--|---|--|
| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF8 / AFATDS Increment 1 |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.1 Fielding | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.2 Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.2 DT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.2 AIC testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.2 OT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.2 Joint testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.2 Fielding | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.3 Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.3 DT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.3 AIC testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.3 OT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.3 Joint testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.3 Fielding | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

UNCLASSIFIED

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|--|---|--|-------------------------|
| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF8 / AFATDS Increment 1 | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|-----------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| AFATDS v7.x.4 Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.4 DT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.4 AIC testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.4 OT | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AFATDS v7.x.4 Joint testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCs) | Project (Number/Name) EF8 / AFATDS Increment 1 |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Advanced Field Artillery Tactical Data System (AFATDS) v7.x Development | 1 | 2021 | 4 | 2029 |
| AFATDS v7.x Development | 3 | 2023 | 4 | 2024 |
| AFATDS v7.x Developmental Testing (DT) | 1 | 2024 | 3 | 2024 |
| AFATDS v7.x Army Interoperability Certification (AIC) testing | 4 | 2024 | 4 | 2024 |
| AFATDS v7.x Operational Testing (OT) | 4 | 2024 | 1 | 2025 |
| AFATDS v7.x Joint testing | 1 | 2025 | 2 | 2025 |
| AFATDS v7.x Fielding | 4 | 2025 | 4 | 2026 |
| AFATDS v7.x First Unit Equipped (FUE) | 4 | 2025 | 4 | 2025 |
| AFATDS v7.x.1 Development | 4 | 2024 | 4 | 2025 |
| AFATDS v7.x.1 DT | 1 | 2025 | 3 | 2025 |
| AFATDS v7.x.1 AIC testing | 4 | 2025 | 4 | 2025 |
| AFATDS v7.x.1 OT | 4 | 2025 | 1 | 2026 |
| AFATDS v7.x.1 Joint testing | 1 | 2026 | 2 | 2026 |
| AFATDS v7.x.1 Fielding | 4 | 2026 | 4 | 2027 |
| AFATDS v7.x.2 Development | 4 | 2025 | 4 | 2026 |
| AFATDS v7.x.2 DT | 1 | 2026 | 3 | 2026 |
| AFATDS v7.x.2 AIC testing | 4 | 2026 | 4 | 2026 |
| AFATDS v7.x.2 OT | 4 | 2026 | 1 | 2027 |
| AFATDS v7.x.2 Joint testing | 1 | 2027 | 2 | 2027 |
| AFATDS v7.x.2 Fielding | 4 | 2027 | 4 | 2028 |
| AFATDS v7.x.3 Development | 4 | 2026 | 4 | 2027 |
| AFATDS v7.x.3 DT | 2 | 2027 | 4 | 2027 |

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203728A / Joint Automated Deep Operation Coordination System (JADOCS) | Project (Number/Name) EF8 / AFATDS Increment 1 |
|--|---|--|

| Events | Start | | End | |
|-----------------------------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| AFATDS v7.x.3 AIC testing | 4 | 2027 | 4 | 2027 |
| AFATDS v7.x.3 OT | 4 | 2027 | 1 | 2028 |
| AFATDS v7.x.3 Joint testing | 1 | 2028 | 2 | 2028 |
| AFATDS v7.x.3 Fielding | 4 | 2028 | 4 | 2029 |
| AFATDS v7.x.4 Development | 4 | 2027 | 4 | 2028 |
| AFATDS v7.x.4 DT | 2 | 2028 | 4 | 2028 |
| AFATDS v7.x.4 AIC testing | 4 | 2028 | 4 | 2028 |
| AFATDS v7.x.4 OT | 4 | 2028 | 1 | 2029 |
| AFATDS v7.x.4 Joint testing | 1 | 2029 | 2 | 2029 |
| AFATDS v7.x.4 Fielding | 4 | 2029 | 4 | 2030 |

Note

Product Manager Fire Support Command and Control migrated to a government developer in 2nd Quarter FY 2023 and implemented an agile development approach that supports annual capability deliveries. Schedule changes reflect this new approach.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|--|---|
| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0203735A / Combat Vehicle Improvement Programs |
|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 272.438 | 194.229 | 146.635 | - | 146.635 | 97.719 | 97.799 | 98.842 | 99.944 | Continuing | Continuing |
| 280: RECOV VEH IMPROV PROG | - | 104.977 | 66.435 | 13.197 | - | 13.197 | - | - | - | - | Continuing | Continuing |
| 330: Abrams Tank Improve Prog | - | 118.471 | 61.205 | 96.240 | - | 96.240 | 83.621 | 83.688 | 84.581 | 85.524 | Continuing | Continuing |
| 371: Bradley Improve Prog | - | 19.153 | - | - | - | - | - | - | - | - | Continuing | Continuing |
| DD4: AMPV Improvement Program | - | - | - | 12.354 | - | 12.354 | - | - | - | - | Continuing | Continuing |
| EE2: Stryker Improvement | - | 29.837 | 66.589 | 24.844 | - | 24.844 | 14.098 | 14.111 | 14.261 | 14.420 | Continuing | Continuing |

Note

DD4: AMPV Improvement Program is a new start in FY24

A. Mission Description and Budget Item Justification

Program Element (PE) 0203735A Combat Vehicle Improvement Programs corrects vehicle deficiencies identified during Army operations; continues technical system upgrades to include the integration of applicable technologies on ground systems; addresses needed evolutionary enhancements to tracked combat vehicles; and develops technology improvements which have application to or insertion opportunities across multiple Ground Combat Systems vehicles. This PE provides combat effectiveness and Operating and Support (O&S) cost reduction enhancements for the Abrams tanks, Bradley Fighting Vehicles and Stryker Family of Vehicles (FOVs) through a series of product improvements.

The strategy for Abrams and Bradley will focus on incrementally delivering capability to the warfighter to meet both near-term limitations as well as mitigating gaps and maintaining combat overmatch in the future. This effort was approved by the Army Acquisition Executive in 3rd Quarter (QTR) Fiscal Year (FY) 2011.

The Abrams Main Battle Tank program has approved Engineering Change Proposals (ECPs) to restore lost capability, host inbound technologies, and to meet objective performance requirements called out in approved platform requirements documents. The strategy for Abrams will focus on incrementally delivering capability to the warfighter to meet both near-term limitations as well as mitigating gaps and maintaining combat overmatch in the future. This approach was approved by the Army Acquisition Executive in 3rd Quarter (Q) Fiscal Year (FY) 2011 and revalidated in an Army Requirements Oversight Council (AROC) decision in 2018. The Army will modernize the tank fleet through a series of deliberate, incremental Engineering Change Proposals (ECPs). The current M1A2 SEPv3 tank (Engineering Change Proposal (ECP) 1A - Power) is in production and is designed to mitigate Space, Weight, and Power (SWaP) limitations as well as create additional margin for integration of future technologies being developed by existing Programs of Record (POR). The M1A2 SEPv4 tank is a follow-on ECP (ECP 1B - Lethality) focused on lethality improvements to integrate higher functioning sensors, modules, and fire control. The Army anticipates achieving a two-variant (M1A2 SEPv3 and M1A2 SEPv4) fleet by 2038. In FY22, MBTS received a \$65M Congressional Add for efforts to mature technology for the next Abrams modernization program. The FY22 congressional add was received in 4th Quarter FY22 and will carry the effort through FY23. In FY24, a new cost element was added for Abrams Modernization. This work is a continuation

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | |
| <p>of work from the FY22 Congressional Add. FY24 efforts continue to mature technologies to help Army Senior Leaders shape the next Abrams modernization program. Focus is on, but not limited to, weight reduction to reclaim operational mobility, improve Abrams lethality, and survivability beyond M1A2 SEPv4.</p> <p>The Recovery Vehicle Improvement program is an Engineering Change Proposal (ECP) that will allow the current recovery vehicle to regain Single Vehicle Recovery (SVR) for the heaviest tracked combat vehicle as defined in the Heavy Equipment Recovery Combat Utility Lift and Evacuation System (HERCULES) Enhanced M88A2E1 Capability Production Document Increment 2 dated 20 January 2017. The fielded M88A2 HERCULES lacks the necessary power, weight, and braking ability to safely support the recovery of the M1A2SEPv2 in all situations and with the next generation M1A2SEPv3 weight growth, the problem will get worse. The M88A3 vehicles will bring back the operational capability of the single vehicle recovery. The increased winching and lifting capability accommodates all 80 ton Abrams variants. Without this increased capability, units must use two M88A2 Medium Recovery Vehicles to perform the necessary spectrum of recovery operations.</p> <p>The Abrams M1A2 SEP V2 and M2/M3A3 Bradley Fighting Vehicles are at or exceed Space, Weight, and Power-Cooling (SWaP-C) limitations. In order to host and restore lost platform capability, the Abrams Tank and Bradley Fighting Vehicle programs will execute a series of ECPs to support the current embedded systems and to facilitate integration of technologies currently in development under other existing Programs of Record. The ECPs are not intended to exceed the operational capability outlined in current system requirements documents, but rather to ensure that the existing system performance is not further degraded and that Army mission equipment packages can be integrated on the Abrams and Bradley Platforms.</p> <p>The Armored Multi-Purpose Vehicle (AMPV) is the materiel solution for replacement of the Army's Armored Personnel Carrier (M113) Family of Vehicles (FoV) within the Armored Brigade Combat Team (ABCT). It will mitigate current and future capability gaps in force protection, survivability, mobility, reliability, and interoperability across the Spectrum of Conflict. AMPV Improvement will address the development of Survivability, Lethality, Mobility, Network Lethality, and Communication, Command and Control (C3) improvements within the AMPV Family of Vehicles (FOVs). The strategy for AMPV Combat Vehicle Improvement line will focus on incrementally delivering capability to the warfighter to meet both near-term limitations as well as mitigating gaps and maintaining combat overmatch in the future while transitioning material solutions for integration and implementation to the AMPV FOV fleet to increase combat capability. FY 2024 Base funding in the amount of \$12.300 million for Project DD4 supports funding for: Army requested changes and those stemming from the Initial Operational Test and initiates development and integration of Enhanced Driver Viewer System (EDVS) and Composite Rubber Track (CRT) on the AMPV FOV. The EDVS color camera system will provide the driver high definition, low and visible light capability to provide the driver substantially improved situational awareness while driving in all weather conditions. The CRT offers significant advantages compared to traditional linked steel track currently utilized to include vehicle weight savings, improved fuel economy, improved track and road wheel durability, reduced Soldier maintenance.</p> <p>Stryker Improvement will address the development of Lethality, Survivability, Mobility, Network Lethality, and Communication, Command and Control (C3) improvements within the Stryker Family of Vehicles (FOVs). Principal development efforts include upgrades associated with the Stryker Double V-Hull A1 (DVH A1) Engineering Change Proposal (ECP), Common Remotely Operated Weapon Station-Javelin (CROWS-J) ONS, Stryker Survivability Enhancement, and Stryker Lethality ECPs. DVH A1 ECP upgrades restore Stryker DVH Space, Weight, and Power-Cooling (SWaP-C) lost as a result of incorporating vehicle changes to counter threats encountered during deployment operations while allowing the future network to be hosted without further degradation in vehicle protection and mobility. The Stryker CROWS-J ONS efforts addressed Urgent Operational Need to increase the lethality of Stryker Infantry Carrier Vehicles (ICV) within the United States Army European Command (USAREUR). The Stryker Survivability Enhancements address evolving threats by assessing survivability improvements, to include but not limited to, 360 Situational</p> | | |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> |
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Awareness, reactive armor tiles, and integration of emerging and existing technologies and other Stryker based platform solutions. The Stryker platform will also include future Mission Equipment Package (MEP) integration that includes but not limited to the Fire Direction Center (FDC) providing an on-the-move capability that processes voice and digital data while maintaining contact with the indirect fire team over extended distances. Stryker Lethality ECP efforts (CROWS-J, Anti-Tank Guided Missile (ATGM), and other capabilities) focus on the integration of a suite of complementary MEP lethality upgrades that will improve the suppressive fire and armored vehicle engagement capabilities across the Army's Stryker Brigade Combat Teams (SBCTs). Additionally, the Lethality MEP upgrades will address existing obsolescence issues of the Remote Weapon Station (RWS) with the CROWS and CROWS-J upgrade. The ATGM ECP will upgrade the Modified Improved Target Acquisitions System (MITAS), incorporating a far target locator and enabling the dissemination of target acquirement information utilizing networked lethality, providing a common operating picture. Stryker Network Modernization will formalize the system integration of the Integrated Tactical Network (ITN), Integrated Visual Augmentation System (IVAS), and Tactical Cloud Package (TCP) as part of Mounted Capability Set 23 (MCS23) for the Stryker platform. Upgrades of the Stryker flat-bottom hull and DVH variants were completed to mitigate known system deficiencies. In support of Readiness, Training-Rapid Fielding of Digitization of Stryker, Army Rapid Sustainment Improvement Process (RSIP) to develop two-way interface between Global Combat Support System - Army (GCSS-Army) and the Operator Tablet to support data transfers of maintenance work orders, parts ordering and updating of maintenance plans.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 280.107 | 192.310 | 120.410 | - | 120.410 |
| Current President's Budget | 272.438 | 194.229 | 146.635 | - | 146.635 |
| Total Adjustments | -7.669 | 1.919 | 26.225 | - | 26.225 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | -4.557 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | 6.500 | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -7.669 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 26.225 | - | 26.225 |
| • FFRDC Transfer | - | -0.024 | - | - | - |

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 280: RECOV VEH IMPROV PROG

Congressional Add: *Wireless Intercommunication System Encryption*

Congressional Add Subtotals for Project: 280

Project: 330: Abrams Tank Improve Prog

Congressional Add: *CONGRESSIONAL ADD - Abrams Modernization*

| | FY 2022 | FY 2023 |
|--|----------------|----------------|
| | - | 6.500 |
| | - | 6.500 |
| | 65.000 | - |

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Congressional Add: *CONGRESSIONAL ADD - Next Generation Auxiliary Power Unit*

Congressional Add Subtotals for Project: 330

Congressional Add Totals for all Projects

| | FY 2022 | FY 2023 |
|--|---------|---------|
| | 5.000 | - |
| | 70.000 | - |
| | 70.000 | 6.500 |

Change Summary Explanation

The FY24 increase for Abrams (330) reflects an expansion of Abrams Modernization efforts.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | | | | Project (Number/Name) 280 / <i>RECOV VEH IMPROV PROG</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| 280: <i>RECOV VEH IMPROV PROG</i> | - | 104.977 | 66.435 | 13.197 | - | 13.197 | - | - | - | - | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The M88 Heavy Equipment Recovery Combat Utility Lift and Evacuation System (HERCULES), designated as an Acquisition Category (ACAT) IC program on 15 Jun 2016, has been providing towing, winching, and hoisting operations to support battlefield recovery operations and evacuation of heavy tanks and other tracked combat vehicles since its production and deployment in 1998. The M88 HERCULES recovers tanks mired to different depths, removes M1 Abrams turrets and power packs, and uprights overturned heavy combat vehicles. Currently, the M88A2 is unable to safely perform Single Vehicle Recovery (SVR) of the Abrams tank in all conditions, due to added weight/survivability improvements made to the tank. To ensure single vehicle recovery is met, Project Manager-Main Battle Tank Systems (PM-MBTS) will develop and integrate Engineering Change Proposal (ECP) technologies for the M88A2 HERCULES through an initiative to meet its operational requirements of single vehicle recovery throughout its life cycle. This initiative is not intended to exceed current operational capability but will instead regain single vehicle recovery capability of the heaviest tracked combat vehicle.

Fiscal Year (FY) 2024 Base dollars will fund product development, continued USG prototype testing and program management office support; to include labor, training, travel, supplies, and equipment to effectively manage the program. The program completes government system level test and verification, along with logistics demonstration activities within FY 2024. The program will conduct a Production Readiness Review (PRR) to ensure readiness to proceed to vehicle production.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Product Development | 102.311 | 35.548 | 4.401 |
| Description: Design and Development of ECPs. | | | |
| FY 2023 Plans: The program continues OTA project oversight, supports completion of the last of (8) M88A3 prototype builds, identifies user touch points and preparation of production contract(s). | | | |
| FY 2024 Plans: The program begins ramping down the OTA project oversight, support for system level verification and test execution, as well as user touch points; begins preparation of production contract(s). | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 280 / <i>RECOV VEH IMPROV PROG</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>PD CRS Product Development will decrease from FY 2023 to FY 2024. The period of performance for the M88A3 OTA will conclude 1Q FY 2025, significantly lowering overall design and logistics burden during FY 2024.</p> <p>Title: Test and Evaluation</p> <p>Description: The Army is conducting Developmental Test and Evaluation (DT&E) on (8) prototype M88A3 vehicles to confirm Single Vehicle Recovery capability for an 80T Main Battle Tank. Test data supports an evaluation of the M88A3 for use in a production decision in 1Q FY 2025. DT&E for the M88A3 includes safety testing, automotive performance, recovery, transportability, Reliability Availability and Maintainability (RAM), Electromagnetic Interference (EMI), Cybersecurity, Survivability-Live Fire Test & Evaluation (LFT&E), Environmental Effects, Logistics Demonstration, and Soldier Touch Point.</p> <p>FY 2023 Plans: The USG will continue test planning and preparation activities started in FY 2022 leading into a full M88A3 test program starting in FY 2023. The test program will consist of the DT&E effort, conducted at both Aberdeen Test Center (ATC) and Yuma Proving Grounds (YPG) and technical manual validation located at the contractor facility.</p> <p>FY 2024 Plans: The USG will continue all test activities started in FY 2023 i.e., DT&E conducted at both Aberdeen Test Center (ATC) and Yuma Proving Grounds (YPG), as well as technical manual validation and the logistics demonstration occurring at the contractor facility.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to partial completion of the M88A3 test program. FY 2024 funding will be used to address test delays and/or vehicle deficiencies identified during testing. M88A3 test program will ramp up in 4Q of FY 2023 and will continue into FY 2024 for 8 vehicles. This includes RAM, Live Fire, Soldier Touch Points, as well as Logistics Demonstration performed at 2 USG locations, Aberdeen Test Center, and Yuma Proving Ground.</p> | | 0.712 | 19.849 | 6.408 |
| <p>Title: Program Management Office (PMO) Support</p> <p>Description: PMO support includes Systems Engineering, Logistics, Government and in-house support Contractor salaries, travel and other support costs required to effectively manage the program.</p> <p>FY 2023 Plans: The FY 2023 program management office support continues for government systems engineering, logistics and test support at multiple sites in FY 2023 to include labor, training, travel, supplies, and equipment to effectively manage the program. Labor efforts continue with OTA project oversight and supports completion of the last of (8) M88A3 prototype builds. Lastly, PMO</p> | | 1.954 | 2.350 | 2.388 |

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 280 / <i>RECOV VEH IMPROV PROG</i> |
|--|--|--|

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| <p>supports activities transitioning into test and evaluation support for system-level verification and test and preparation of production contract(s).</p> <p>FY 2024 Plans: The FY 2024 program management office completes it's support towards the OTA project oversight, government systems engineering, logistics and test support at multiple sites as the program transitions into preparation of the M88A3 production contracting efforts. PMO support includes labor, training, travel, supplies, and equipment to effectively manage the program.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 increase reflects economic assumptions.</p> | | | |
| <p>Title: SBRR/STTR</p> <p>Description: Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC 638.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638.</p> | - | 2.188 | - |
| Accomplishments/Planned Programs Subtotals | 104.977 | 59.935 | 13.197 |

| | FY 2022 | FY 2023 |
|--|---------|---------|
| <p>Congressional Add: Wireless Intercommunication System Encryption</p> <p>FY 2023 Plans: The USG will contract with the M88 Original Equipment Manufacturer (OEM) and wireless communication supplier to begin integration design work for system encryption capability, leading to demonstration and test.</p> | - | 6.500 |
| Congressional Adds Subtotals | - | 6.500 |

| C. Other Program Funding Summary (\$ in Millions) | | | FY 2024 | FY 2024 | FY 2024 | | | | | <u>Cost To</u> | | | |
|---|----------------|----------------|-------------|------------|--------------|----------------|----------------|----------------|----------------|-----------------|-------------------|--|--|
| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>Base</u> | <u>OCO</u> | <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Complete</u> | <u>Total Cost</u> | | |
| • GA0570: <i>IMPROVED RECOVERY VEHICLE (M88 HERCULES)</i> | 51.725 | 132.203 | 41.058 | - | 41.058 | 151.351 | 158.437 | 153.870 | 144.625 | 0.000 | 833.269 | | |
| Remarks | | | | | | | | | | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
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D. Acquisition Strategy

The Project Manager (PM) for Main Battle Tank Systems (MBTS) is executing an Engineering Change Proposal (ECP) to regain single vehicle recovery capability of the M88A2 HERCULES vehicle. The strategy utilizes the Detroit Arsenal Automotive Other Transaction Authority (DA2 OTA) which competitively awarded a single contract to develop, integrate and produce (8) prototype vehicles entering testing in FY 2023. After achieving OTA success criteria, a contract award using procurement dollars procures up to (70) initial production vehicles, as well as the procurement of hardware kits/components comprised of engines, transmissions, track and suspensions. Follow on M88A3 production will utilize a Federal Acquisition Regulation (FAR) based contract through the defined Army Acquisition Objective (AAO). The M88A2 HERCULES production vehicles continue fielding to units through FY 2026.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 280 / <i>RECOV VEH IMPROV PROG</i> |
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| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| SBIR/STTR Transfer | TBD | Various : Various | - | - | | 2.118 | | - | | - | | - | 0.000 | 2.118 | - |
| Subtotal | | | - | - | | 2.118 | | - | | - | | - | 0.000 | 2.118 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Product Development | Various | BAE Systems : TBD | 215.599 | 97.859 | Oct 2021 | 35.618 | Oct 2022 | 4.401 | Nov 2023 | - | | 4.401 | 0.000 | 353.477 | - |
| Wireless Intercommunication System Encryption | TBD | BAE Systems : York, PA | - | - | | 6.500 | Mar 2023 | - | | - | | - | 0.000 | 6.500 | - |
| Subtotal | | | 215.599 | 97.859 | | 42.118 | | 4.401 | | - | | 4.401 | 0.000 | 359.977 | N/A |

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Program Management Office (PMO) Support | MIPR | PMO Support Offices, Ricardo Defense, DCS and Army Research Labs (ARL) : Various | 6.861 | 1.971 | Dec 2021 | 2.350 | Dec 2022 | 2.388 | Dec 2023 | - | | 2.388 | 0.000 | 13.570 | - |
| Subtotal | | | 6.861 | 1.971 | | 2.350 | | 2.388 | | - | | 2.388 | 0.000 | 13.570 | N/A |

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|----------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Test and Evaluation | Various | Aberdeen Test Center (ATC), Yuma | 1.009 | 5.147 | Aug 2022 | 19.849 | Feb 2023 | 6.408 | Jan 2024 | - | | 6.408 | 0.000 | 32.413 | - |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 280 / <i>RECOV VEH IMPROV PROG</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| M88A3 ECP Design/Develop Prototype Build/Component Quali. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Initial Log- Technical Manual Validation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test Readiness Review (TRR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M88A3 ECP Government Test Program | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| System Verification Review (SVR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Log Demo Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M88A3 ECP Production Award Decision Point | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M88A3 ECP Production Award | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Production Validation Test (PVT) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M88A3 ECP Fielding Start Date (First Unit Equipped) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 280 / <i>RECOV VEH IMPROV PROG</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| M88A3 ECP Design/Develop Prototype Build/Component Qualification | 4 | 2019 | 3 | 2023 |
| Initial Log- Technical Manual Validation | 3 | 2023 | 2 | 2024 |
| Test Readiness Review (TRR) | 4 | 2023 | 4 | 2023 |
| M88A3 ECP Government Test Program | 4 | 2023 | 4 | 2024 |
| System Verification Review (SVR) | 3 | 2024 | 3 | 2024 |
| Log Demo Test | 3 | 2024 | 4 | 2024 |
| M88A3 ECP Production Award Decision Point | 1 | 2025 | 1 | 2025 |
| M88A3 ECP Production Award | 2 | 2025 | 2 | 2025 |
| Production Validation Test (PVT) | 4 | 2026 | 3 | 2027 |
| M88A3 ECP Fielding Start Date (First Unit Equipped) | 3 | 2027 | 3 | 2027 |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i> |
|--|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--------------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| 330: <i>Abrams Tank Improve Prog</i> | - | 118.471 | 61.205 | 96.240 | - | 96.240 | 83.621 | 83.688 | 84.581 | 85.524 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Army has approved Engineering Change Proposals (ECPs) for the Abrams Main Battle Tank to restore lost capability, host inbound technologies, and to meet objective performance requirements called out in approved platform requirements documents. The strategy for Abrams will focus on incrementally delivering capability to the warfighter to meet both near-term limitations as well as mitigating gaps and maintaining combat overmatch in the future. This approach was approved by the Army Acquisition Executive in 3rd Quarter (Q) Fiscal Year (FY) 2011 and revalidated in an AROC decision in 2018.

The Army will modernize the tank fleet through a series of deliberate, incremental Engineering Change Proposals (ECPs). The current M1A2 SEPv3 tank (Engineering Change Proposal (ECP) 1A - Power) is in production and is designed to mitigate Space, Weight, and Power (SWaP) limitations as well as create additional margin for integration of future technologies being developed by existing Programs of Record (POR). The M1A2 SEPv4 tank is a follow-on ECP (ECP 1B - Lethality) focused on lethality improvements to integrate higher functioning sensors, modules, and fire control. The Army anticipates achieving a two-variant (M1A2 SEPv3 and M1A2 SEPv4) fleet by 2038.

In FY22, MBTS received a \$65M Congressional Add for efforts to mature technology for the next Abrams modernization program. The FY22 congressional add was received in 4th Quarter FY22 and will carry the effort through FY23. In FY24, a new cost element was added for Abrams Modernization. This work is a continuation of work from the FY22 Congressional Add. FY24 efforts continue to mature technologies to help Army Senior Leaders shape the next Abrams modernization program. Focus is on, but not limited to, weight reduction to reclaim operational mobility, improve Abrams lethality, and survivability beyond M1A2 SEPv4.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| <p>Title: Abrams Lethality Engineering Change Proposal M1A2SEP V4/ECP 1B</p> <p>Description: The Abrams SEP (System Enhancement Package) v4 program consists of lethality improvements primarily focused on the integration of 3rd Generation Forward Looking Infrared (FLIR). Additional improvements include a Laser Warning Receiver (LWR), Improved Thermal Management System (ITMS), and target acquisition sensor upgrades consisting of inclusion of color cameras, laser capabilities, and image processing. Other potential improvements include vehicle smoke generation, survivability enhancements, signature management improvements, embedded training enhancements, 360 Situational Awareness cameras, and weight reduction efforts. Trade studies, analysis and technology maturation will be performed to evaluate prospective improvements, along with obsolescence mitigation, and incorporation of inbound technologies currently under development.</p> <p>FY 2023 Plans:</p> | 33.097 | 6.062 | 12.446 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| SEPV4 program completes contractor led OEM testing and begins Army developmental test and evaluation in 3QFY23. FY 2024 Plans: SEPV4 program will continue and complete Army developmental test and evaluation. Begin Army Live Fire Testing in Q4. Majority of contractor activities will focus on logistics products and resolving issues found in Army test and evaluation report. FY 2023 to FY 2024 Increase/Decrease Statement: The increase will be associated with resolving issues discovered during Army Test and Evaluation and SEPV4 vehicle logistics product development. | | | | |
| Title: Program Management Office (PMO) Support Description: PMO Support includes Systems Engineering and Government and Contractor salaries, travel and other support costs required to effectively manage the program. FY 2023 Plans: Continue Government Systems Engineering and Program Management office support. This will include labor, training, travel, supplies, and equipment to effectively manage the program. FY 2024 Plans: Continue Government Systems Engineering and Program Management office support. This will include labor, training, travel, supplies, and equipment to effectively manage the program. FY 2023 to FY 2024 Increase/Decrease Statement: The slight increase in PMO support is due to salary increases. There is no anticipated change to headcount. | | 2.064 | 5.394 | 5.825 |
| Title: Test & Evaluation - Engineering Change Proposal M1A2SEP V4/ECP 1B Description: Comprises government test and evaluation of the SEP (System Enhancement Package) v4. Testing includes developmental, operational, and live fire test and evaluation. Government test modeling and simulation, detailed vehicle test planning, and initial test site preparation are also included. FY 2023 Plans: SEPV4 program completes OEM testing and begins government developmental test and evaluation. FY 2024 Plans: Will continue and complete Army developmental test and evaluation activities. Will begin Army Live Fire Testing in Q4. FY 2023 to FY 2024 Increase/Decrease Statement: | | 3.410 | 9.829 | 7.081 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| The decrease is due to the conclusion of Army developmental testing and the transition to Army Live Fire Testing in Q4. | | | | |
| Title: Lethality and Survivability Enhancements | | 9.900 | 37.686 | 8.150 |
| Description: Enhances lethality primarily through integration of improved munitions (smart rounds), gun turret drive improvements, cannon improvements, image processing enhancements and advanced algorithms. Survivability enhancements will focus on improved sensors, 360 Situational Awareness, active protection systems, armor improvements, and unmanned system defeat. Mobility enhancements will focus on efforts to reduce the weight of the tank to ensure operational mobility. | | | | |
| FY 2023 Plans: Abrams continues integration of survivability enhancements and further investigates technologies that may reduce crew cognitive burden and overall weight of the tank to ensure operational mobility. | | | | |
| FY 2024 Plans: Abrams will continue integration of survivability enhancements and will further investigate mature technologies for future integration efforts. | | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: The decrease is a result of FY23 activities narrowing the breadth of mature technologies. | | | | |
| Title: Abrams Modernization | | - | - | 62.738 |
| Description: Matures technologies to help Army Senior Leaders shape the next Abrams modernization program. Focus is on, but not limited to, weight reduction to reclaim operational mobility, improve Abrams lethality, and survivability beyond M1A2 SEpv4. | | | | |
| FY 2024 Plans: Will investigate, mature, and demonstrate candidate technology options in accordance with Army Senior Leader guidance. | | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: This is a new cost element in FY24 but a continuation of work from the FY22 Congressional Add for Abrams Modernization. This is work that continues to mature technology for the next Abrams modernization program. | | | | |
| Title: SBIR/STTR Transfer | | - | 2.234 | - |
| FY 2023 Plans: Actual SBIR/STTR Tax amount shown. | | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638. | | | | |
| Accomplishments/Planned Programs Subtotals | | 48.471 | 61.205 | 96.240 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i> |

| | FY 2022 | FY 2023 |
|--|---------|---------|
| Congressional Add: CONGRESSIONAL ADD - Abrams Modernization <i>FY 2022 Accomplishments:</i> The Congressional Add of \$65M reflects an increase for Abrams Modernization efforts to include, but not limited to: Unmanned Turret, Autoloader and Automated Ammunition Handling System, Hydro-Pneumatic suspension, Integration APS, and Hybrid Electric Drive. | 65.000 | - |
| Congressional Add: CONGRESSIONAL ADD - Next Generation Auxiliary Power Unit <i>FY 2022 Accomplishments:</i> The Congressional Add of \$5M reflects an increase to evaluate integration of Hydro-Pneumatic Suspension Units onto the Abrams chassis. | 5.000 | - |
| Congressional Adds Subtotals | 70.000 | - |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|---|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| • GA0750: <i>Abrams Upgrade Program</i> | 1,145.837 | 1,247.340 | 800.323 | - | 800.323 | 1,094.468 | 1,156.019 | 784.931 | 1,404.395 | Continuing | Continuing |

Remarks

D. Acquisition Strategy

Research & Development Contract - Sole Source, Cost Plus Incentive Fee (CPIF); SEP v4 - Research & Development Contract - Sole Source, CPIF.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | |
|--|------------------------|--|-------------|---|------------|---------|------------|--------------|--------------------------------|-------------|------------|------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | | Project (Number/Name) | | | | | | |
| 2040 / 7 | | | | PE 0203735A / Combat Vehicle Improvement Programs | | | | | 330 / Abrams Tank Improve Prog | | | | | | |
| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| SBIR/STTR Transfer | TBD | TBD : TBD | - | - | | 2.234 | | - | | - | | - | 0.000 | 2.234 | - |
| Subtotal | | | - | - | | 2.234 | | - | | - | | - | 0.000 | 2.234 | N/A |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Abrams SEPv4 | SS/CIPIF | General Dynamics Land Systems : Sterling Heights, MI | 371.959 | 33.097 | Dec 2021 | 6.062 | Oct 2022 | 12.446 | Nov 2023 | - | | 12.446 | Continuing | Continuing | Continuing |
| Lethality and, Survivability Enhancements | Option/ Various | Various : Various | 14.361 | 9.900 | May 2022 | 37.686 | Jan 2023 | 8.150 | May 2024 | - | | 8.150 | Continuing | Continuing | Continuing |
| CONGRESSIONAL ADD - Abrams Mobility | TBD | General Dynamics Land Systems : Sterling Heights, MI | - | 65.000 | Jul 2022 | - | | - | | - | | - | 0.000 | 65.000 | - |
| CONGRESSIONAL ADD - Auxiliary Power Unit | Various | Ricardo Defense and Blue Sky : Ricardo (MI); Blue Sky (FL) | - | 5.000 | Jul 2022 | - | | - | | - | | - | 0.000 | 5.000 | - |
| Abrams Modernization | TBD | TBD : TBD | - | - | | - | | 62.738 | May 2024 | - | | 62.738 | 0.000 | 62.738 | Continuing |
| Subtotal | | | 386.320 | 112.997 | | 43.748 | | 83.334 | | - | | 83.334 | Continuing | Continuing | N/A |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Program Management Office (PMO) Support | MIPR | PMO Support Offices : TACOM, GVSC, ARDEC, ARL, Picatinny | 95.973 | 2.064 | Dec 2021 | 5.394 | Dec 2022 | 5.825 | Dec 2023 | - | | 5.825 | Continuing | Continuing | Continuing |
| Subtotal | | | 95.973 | 2.064 | | 5.394 | | 5.825 | | - | | 5.825 | Continuing | Continuing | N/A |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i> | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Original Equipment Manufacturer (OEM) Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SEP V4 Developmental Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SEP V4 Test Readiness Review | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Future Capability Enhancements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SEP V4 Live Fire Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SEP V4 Log Demo | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SEP V4 Operational Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SEP V4 Materiel Release | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note
SEP (System Enhancement Program)

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 330 / <i>Abrams Tank Improve Prog</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Original Equipment Manufacturer (OEM) Testing | 3 | 2022 | 3 | 2023 |
| SEP V4 Developmental Testing | 3 | 2023 | 4 | 2024 |
| SEP V4 Test Readiness Review | 3 | 2023 | 3 | 2023 |
| Future Capability Enhancements | 2 | 2024 | 4 | 2026 |
| SEP V4 Live Fire Testing | 4 | 2024 | 2 | 2025 |
| SEP V4 Log Demo | 4 | 2024 | 1 | 2025 |
| SEP V4 Operational Testing | 2 | 2025 | 3 | 2025 |
| SEP V4 Materiel Release | 1 | 2026 | 1 | 2026 |
| SEP V4 First Unit Equipped | 4 | 2029 | 4 | 2029 |

Note

SEP (System Enhancement Program)

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|--|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 371 / <i>Bradley Improve Prog</i> |
|--|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|----------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| 371: <i>Bradley Improve Prog</i> | - | 19.153 | - | - | - | - | - | - | - | - | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Bradley Fighting Vehicle will continue to be a major combat vehicle in the Army Operational Force for the next 20-25 years. Current modernization efforts, such as the Track and Suspension Engineering Change Proposal (ECP) and the A4 Mobility ECP, address current space, weight, and power-cooling (SWAP-C) limitations. The Bradley will continue to modernize to support additional capabilities required to counter evolving threats in multi-domain operations including, but not limited to improved vehicle diagnostics and systems to increase maintainability, mobility, survivability, sensor digitization, improved power distribution, and cyber and software improvements. These improvements increase the Bradley Fighting Vehicle's ability to survive in a cyber and electronic warfare permissive environment.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
|--|---------|---------|---------|

| | | | |
|--|--------|---|---|
| Title: Bradley Improvements | 17.760 | - | - |
| Description: Provided funding for the analysis, engineering, development, and integration to support Army directed inbound technologies, address critical obsolescence concerns and other improvements to the Bradley vehicles. | | | |

| | | | |
|--|-------|---|---|
| Title: Bradley A4 ECP Program | 0.253 | - | - |
| Description: Current projections indicate the Bradley Fighting Vehicle and the Bradley Fire Support Vehicle will remain in the Armored Brigade Combat Team (ABCT) formation until the 2050s. Given this, additional Research and Development (R&D) is required to keep the force relevant. The Bradley Fighting Vehicle System (BFVS) improvements implemented through the ECP Program will focus on restoring lost platform capability and provide capacity to support Army inbound technologies and to facilitate integration of technologies currently in development under other existing programs of record. | | | |

| | | | |
|--|-------|---|---|
| Title: Program Management Office (PMO) Support | 1.140 | - | - |
| Description: PMO Support included systems engineering, government and contractor salaries, travel, training and other support costs required to effectively manage the program. | | | |

| | | | |
|---|--------|---|---|
| Accomplishments/Planned Programs Subtotals | 19.153 | - | - |
|---|--------|---|---|

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

| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| • GZ2400: <i>Bradley Program (MOD)</i> | 460.385 | 260.398 | 158.274 | - | 158.274 | 129.907 | 102.738 | 101.136 | 104.154 | Continuing | Continuing |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 371 / <i>Bradley Improve Prog</i> |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|

Remarks

D. Acquisition Strategy

Product Manager Bradley will execute modification work orders following completion of development to support integrating FY 2022 funded capabilities into the formation at an average rate of three ABCTs per year. Software capability upgrades, including cyber, will be included in the next iteration of Voice, Video and Integrated Data (VVID) software in FY 2022 - FY 2024 time frame.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | | |
|--|------------------------|--------------------------------|-------------|---|------------|---------|------------|-------------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|--|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | | |
| 2040 / 7 | | | | PE 0203735A / Combat Vehicle Improvement Programs | | | | 371 / Bradley Improve Program | | | | | | | | |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| Bradley Improvements | MIPR | TBD : TBD | 79.533 | 17.603 | Feb 2022 | - | | - | | - | | - | Continuing | Continuing | Continuing | |
| Bradley A4 Engineering Change Proposal (ECP) Program | MIPR | PMO : Warren, Picatinny NJ | 103.878 | 0.254 | Dec 2022 | - | | - | | - | | - | 0.000 | 104.132 | - | |
| Subtotal | | | 183.411 | 17.857 | | - | | - | | - | | - | Continuing | Continuing | N/A | |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| PMO/PEO Support/OGA | MIPR | PMO/PEO : Bradley ECP Program | 38.312 | 0.783 | Dec 2022 | - | | - | | - | | - | Continuing | Continuing | Continuing | |
| Government Engineering Support | MIPR | Various : Bradley ECP Program | 53.034 | 0.513 | Dec 2022 | - | | - | | - | | - | Continuing | Continuing | Continuing | |
| Subtotal | | | 91.346 | 1.296 | | - | | - | | - | | - | Continuing | Continuing | N/A | |
| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| Government Testing | MIPR | Various : Test Sites | 58.020 | - | | - | | - | | - | | - | Continuing | Continuing | Continuing | |
| Subtotal | | | 58.020 | - | | - | | - | | - | | - | Continuing | Continuing | N/A | |
| Project Cost Totals | | | 332.777 | 19.153 | | - | | - | | - | | - | Continuing | Continuing | N/A | |
| Remarks | | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 371 / <i>Bradley Improve Prog</i> | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Bradley Improvements - Sensor Digitization - IBAS Develo... | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bradley Improvements - Sensor Digitization - SA | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bradley Improvements - Power Architecture | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) 371 / <i>Bradley Improve Prog</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Bradley M2A4 Engineering Change Proposal (ECP) Program | 1 | 2012 | 3 | 2021 |
| Operational Test and Evaluation - Bradley A4 ECP | 4 | 2020 | 2 | 2021 |
| Bradley Improvements - Sensor Digitization - IBAS Development | 4 | 2019 | 1 | 2022 |
| Bradley Improvements - Sensor Digitization - SA | 2 | 2020 | 4 | 2023 |
| Bradley Improvements - Power Architecture | 4 | 2019 | 4 | 2023 |

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | | | | Project (Number/Name) DD4 / <i>AMPV Improvement Program</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| DD4: <i>AMPV Improvement Program</i> | - | - | - | 12.354 | - | 12.354 | - | - | - | - | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

Note

AMPV Improvement Program is a new start within the Combat Vehicle Improvement Programs program in FY 2024.

A. Mission Description and Budget Item Justification

The Armored Multi-Purpose Vehicle (AMPV) is the materiel solution for replacement of the Army's Armored Personnel Carrier (M113) Family of Vehicles (FoV) within the Armored Brigade Combat Team (ABCT). It will mitigate current and future capability gaps in force protection, survivability, mobility, reliability, and interoperability across the Spectrum of Conflict. AMPV Improvement will address the development of Survivability, Lethality, Mobility, Network Lethality, and Communication, Command and Control (C3) improvements within the AMPV Family of Vehicles (FOVs). The strategy for AMPV Combat Vehicle Improvement line will focus on incrementally delivering capability to the warfighter to meet both near-term limitations as well as mitigating gaps and maintaining combat overmatch in the future while transitioning material solutions for integration and implementation to the AMPV FOV fleet to increase combat capability.

FY 2024 Base funding in the amount of \$12.354 million for Project DD4 supports funding for: Army requested changes and those stemming from the Initial Operational Test and initiates development and integration of Composite Rubber Track (CRT), Fire Direction Center (FDC) and Modular Turreted Mortar System (MTMS) on the AMPV FOV. As required, support Army assessment, experimentation, testing efforts relating to emerging Army requirements impacting the AMPV design. Composite Rubber Track (CRT) is a single continuous 'band' of track manufactured from multiple rubber compounds, Kevlar, steel reinforcement, and metallic composite stiffeners. The CRT offers significant advantages compared to traditional linked steel track currently utilized to include vehicle weight savings, improved fuel economy, improved track and road wheel durability, reduced Soldier maintenance. Fire Direction Center (FDC) mission role needs to include capability to support the ability to conduct analog fire mission processing (i.e., "Charts and Darts"). Modular Turreted Mortar System (MTMS) will provide added capabilities in 120mm caliber: low angle fires, fire on the move capability, increased range, and improved crew protection with turret.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: Armored Multi Purpose Vehicle (AMPV) Product Development | - | - | 11.520 |
| Description: Provides funding for the analysis, engineering, development, and integration to support Army directed inbound technologies as well as any additional fixes that resulted from AMPV Test and Evaluation. As required, support Army assessment, experimentation, and testing efforts relating to emerging Army requirements impacting the AMPV design. | | | |
| FY 2024 Plans: Conduct system level integration and engineering efforts to upgrade and design mobility, survivability, reliability, and lethality upgrades. Will conduct trade studies, market surveys, select and demonstrate capability for FCD and MTMS projects. CRT will | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) DD4 / <i>AMPV Improvement Program</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>start the design and related engineering changes, start track qualification, and begin logistical development packages for the AMPV FOV. FDC will start the design and related engineering efforts to reconfigure the AMPV variant to execute the necessary functions. MTMS will execute technology demonstration to provide body of knowledge for future decisions on acquisition and integration on the AMPV vehicle.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: New start program for AMPV Combat Improvement Program in FY24.</p> | | | | |
| <p>Title: Program Management Office (PMO) Support</p> <p>Description: Program Office Support include systems engineering, government and contractor salaries, travel, training, and other support costs required to effectively manage the program.</p> <p>FY 2024 Plans: Systems Engineering and Program Management support (labor, travel, training, supplies, and equipment) for Research, Development, Test, & Evaluation (RDT&E) efforts related to emerging Army requirements impacting the AMPV design.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: New start program for AMPV Combat Improvement Program in FY24.</p> | | - | - | 0.834 |
| Accomplishments/Planned Programs Subtotals | | - | - | 12.354 |
| C. Other Program Funding Summary (\$ in Millions) | | | | |
| N/A | | | | |
| Remarks | | | | |
| D. Acquisition Strategy | | | | |
| <p>The AMPV program was initiated at Milestone B (MS B). The 22 December 2014 MS B Acquisition Decision Memorandum (ADM) approved contract award for the Engineering and Manufacturing Development phase plus three Low Rate Initial Production (LRIP) options to BAE Systems Land & Armaments, L.P. on a competitive basis. The Army Acquisition Executive (AAE) approved the Milestone C ADM on January 25, 2019, authorizing Low Rate Initial Production. All three LRIP options have since been exercised. As a result of vehicle delivery delays, the AAE approved a revised Acquisition Program Baseline to adjust the program schedule on January 7, 2021. The program is scheduled for a Full Rate Production Decision in FY23.</p> | | | | |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | | |
| Appropriation/Budget Activity 2040 / 7 | | | | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | | | | Project (Number/Name) DD4 / <i>AMPV Improvement Program</i> | | | | | | | | |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| Product Development | C/TBD | TBD : TBD | - | - | | - | | 11.520 | Nov 2023 | - | | 11.520 | 0.000 | 11.520 | Continuing | |
| Subtotal | | | - | - | | - | | 11.520 | | - | | 11.520 | 0.000 | 11.520 | N/A | |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| Program Management | RO | TBD : Warren, MI | - | - | | - | | 0.834 | Dec 2023 | - | | 0.834 | 0.000 | 0.834 | Continuing | |
| Subtotal | | | - | - | | - | | 0.834 | | - | | 0.834 | 0.000 | 0.834 | N/A | |
| Project Cost Totals | | | - | - | | - | | 12.354 | | - | | 12.354 | 0.000 | 12.354 | N/A | |
| Remarks | | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) DD4 / <i>AMPV Improvement Program</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Product Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Enhanced Drivers Vision System Improvement | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AMPV Composite Rubber Track Improvement | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) DD4 / <i>AMPV Improvement Program</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Product Development | 1 | 2024 | 4 | 2029 |
| Enhanced Drivers Vision System Improvement | 1 | 2024 | 4 | 2027 |
| AMPV Composite Rubber Track Improvement | 1 | 2024 | 2 | 2027 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | | | | Project (Number/Name) EE2 / <i>Stryker Improvement</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| EE2: <i>Stryker Improvement</i> | - | 29.837 | 66.589 | 24.844 | - | 24.844 | 14.098 | 14.111 | 14.261 | 14.420 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Stryker Improvement will address the development of Lethality, Survivability, Mobility, Network Lethality, and Communication, Command and Control (C3) improvements within the Stryker Family of Vehicles (FOVs). Principal development efforts include upgrades associated with the Stryker Double V-Hull A1 (DVH A1) Engineering Change Proposal (ECP), Common Remotely Operated Weapon Station-Javelin (CROWS-J) ONS, Stryker Survivability Enhancement, and Stryker Lethality ECPs. DVH A1 ECP upgrades restore Stryker DVH Space, Weight, and Power-Cooling (SWaP-C) lost as a result of incorporating vehicle changes to counter threats encountered during deployment operations while allowing the future network to be hosted without further degradation in vehicle protection and mobility. The Stryker CROWS-J ONS efforts addressed Urgent Operational Need to increase the lethality of Stryker Infantry Carrier Vehicles (ICV) within the United States Army European Command (USAREUR). The Stryker Survivability Enhancements address evolving threats by assessing survivability improvements, to include but not limited to, 360 Situational Awareness, reactive armor tiles, and integration of emerging and existing technologies and other Stryker based platform solutions. The Stryker platform will also include future Mission Equipment Package (MEP) integration that includes but not limited to the Fire Direction Center (FDC) providing an on-the move capability that processes voice and digital data while maintaining contact with the indirect fire team over extended distances. Stryker Lethality ECP efforts (CROWS-J, Anti-Tank Guided Missile (ATGM), and other capabilities) focus on the integration of a suite of complementary MEP lethality upgrades that will improve the suppressive fire and armored vehicle engagement capabilities across the Army's Stryker Brigade Combat Teams (SBCTs). Additionally, the Lethality MEP upgrades will address existing obsolescence issues of the Remote Weapon Station (RWS) with the CROWS and CROWS-J upgrade. The ATGM ECP will upgrade the Modified Improved Target Acquisitions System (MITAS), incorporating a far target locator and enabling the dissemination of target acquirement information utilizing networked lethality, providing a common operating picture. Stryker Network Modernization will formalize the system integration of the Integrated Tactical Network (ITN), Integrated Visual Augmentation System (IVAS), and Tactical Cloud Package (TCP) as part of Mounted Capability Set 23 (MCS23) for the Stryker platform. Upgrades of the Stryker flat-bottom hull and DVH variants were completed to mitigate known system deficiencies. In support of Readiness, Training-Rapid Fielding of Digitization of Stryker, Army Rapid Sustainment Improvement Process (RSIP) to develop two-way interface between Global Combat Support System - Army (GCSS-Army) and the Operator Tablet to support data transfers of maintenance work orders, parts ordering and updating of maintenance plans.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Stryker DVH A1 ECP Development (Engineering/Prototypes) | 3.728 | - | - |
| Description: The Stryker DVH A1 ECP is a fleet-wide initiative that mitigates mobility degradation caused by survivability improvements. Addresses vehicle space, weight, power, cooling and computing challenges. Returns the performance of the DVH nearly back to the original design capacity and provides approximately 20% growth potential in gross vehicle weight and power generation capacity posturing these vehicles for efficient upgrades in the future. | | | |
| Title: Stryker Lethality ECPs Development (Engineering/Prototypes) | 3.415 | 4.448 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) EE2 / <i>Stryker Improvement</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>Description: Lethality ECPs encompass the integration of a 30 millimeter (mm) (ICVVA1-30mm), under armor Javelin fire capability (Common Remotely Operated Weapon Station-Javelin (CROWS-J)), improved optics and targeting systems, Inertial Navigation Unit (INU) sensor, and other capabilities into the Stryker fleet. These improvements will provide for increased under armor fire capability, target identification range, provide over-match against peer threats and supporting infantry assault, and address obsolescence within the targeting and reconnaissance systems utilized on the Stryker FoV.</p> <p>FY 2023 Plans: Continuing Stryker Lethality ECPs development to integrate the Inertial Navigation Unit (INU) sensor and Global Positioning System (GPS) information with CROWS-J to communicate with the Joint Battle Command - Platform (JBC-P). Complete ATGM ECP logistic products.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to completion of Stryker Lethality ECPs development of integrating the Inertial Navigation Unit (INU) sensor and Global Positioning System (GPS) information with CROWS-J to communicate with the Joint Battle Command - Platform (JBC-P). Completion of ATGM ECP logistic products.</p> | | | | |
| <p>Title: Stryker Lethality ECPs Testing</p> <p>Description: Government and Contractor Support for developmental, operational and live fire testing in support of Lethality ECPs, including Inertial Navigation Unit (INU) sensor testing.</p> <p>FY 2023 Plans: Initiate development of test plans and procedures for the Inertial Navigation Unit (INU) sensor testing.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to completion of development test plans and procedures for the Inertial Navigation Unit (INU) sensor testing.</p> | | 2.590 | 0.080 | - |
| <p>Title: Government Systems Engineering and Project Management</p> <p>Description: Government Systems Engineering and Program Management includes salaries, travel and other support costs required to effectively manage all Research, Development, Test, & Evaluation (RDT&E) efforts.</p> <p>FY 2023 Plans: Government Systems Engineering and Program Management support (labor, travel, training, supplies, and equipment) for Research, Development, Test, & Evaluation (RDT&E) efforts, including Survivability Enhancement, Non Primary Power Systems, Fire Direction Center development, and Stryker Network Modernization Development.</p> <p>FY 2024 Plans:</p> | | 4.660 | 4.854 | 3.290 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) EE2 / <i>Stryker Improvement</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| Government Systems Engineering and Program Management support (labor, travel, training, supplies, and equipment) for Research, Development, Test, & Evaluation (RDT&E) efforts, including Survivability Enhancement, Non Primary Power Systems, Fire Direction Center development, and Stryker Network Modernization Development. FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due completion of Lethality ECPs development and testing. | | | | |
| Title: Stryker Power System Description: Development and testing of a non-primary power solution for the Stryker platform. The non-primary power enhancement incorporates multiple components and capabilities, including the battery box container, Auxiliary Power Unit (APU) and interface kits. FY 2023 Plans: Continuing of the integration design effort, testing and logistics product development for the non-primary solution. Conduct a Soldier Touch Point in an Operational Environment. FY 2024 Plans: Completion of the non-primary power design effort and integration. Testing and logistics product development and execution continues. FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to completion of the non-primary power design effort and integration. Testing and logistics product development continues. | | 7.426 | 6.983 | 3.024 |
| Title: Stryker Platform Mission Equipment Packages Integration Description: Development engineering of MEP onto the Stryker platforms. Integration of the Fire Direction Center MEP onto the DVH A1 platform. FY 2023 Plans: Continue integration engineering and procurement of prototype hardware for the Fire Direction Center MEP onto the DVHA1. FY 2024 Plans: Continue integration engineering for the Fire Direction Center MEP onto the DVHA1. FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to completion of procurement of prototype hardware for the Fire Direction Center MEP onto the DVHA1. | | 2.716 | 3.132 | 0.270 |
| Title: Stryker Survivability Enhancements | | 2.224 | 8.212 | 4.232 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) EE2 / <i>Stryker Improvement</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>Description: The Stryker Survivability Enhancements will develop strategies, through technical and engineering analyses, for the integration of emerging technologies onto the Stryker Platforms. The Stryker Survivability Enhancements will include, but are not limited to, the fleet wide 360 degree Situational Awareness, hardware convergence, and sensor suite collaboration.</p> <p>FY 2023 Plans: Funding supports 360-degree Situational Awareness B-kit Request for Proposal and Source Selection Processes.</p> <p>FY 2024 Plans: Funding supports 360-degree Situational Awareness A-kit and B-kit non-recurring engineering (NRE).</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase due to the continuation of the 360-degree Situational Awareness (360 SA) effort with prototyping and testing, along with other emerging technologies.</p> | | | | |
| <p>Title: Stryker Network Modernization Development (Engineering / Prototypes)</p> <p>Description: Stryker Network Modernization will formally integrate the Integrated Tactical Network (ITN), Integrated Visual Augmentation System (IVAS) vehicle support kit, and Tactical Cloud Package (TCP) as part of Mounted Capability Set 23 (MCS23) at the System of Systems level. Effort will prioritize the DVHA1 Platform and include DVHA0. With the Army's Network Vision 2028, and Army 2030 planning, the Network CFT has coordinated closely with PEO C3T, PEO GCS, PEO Soldier, and PEO IEW&S to deliver a suite of capabilities as part of M-CS23 for DVHA1 and DVHA0. These capabilities are required in SBCT formations to provide Soldiers with a resilient and assured data transport network to the tactical edge, provide a robust and real-time common tactical operating picture among friendly forces and ensure overmatch with near-peer adversaries.</p> <p>FY 2023 Plans: Begin to develop formalized system integration of M-CS23, develop and validate operator and maintainer manual updates, and deliver production-level installation kit technical data package (TDP) that can be used for a competitive production and retrofit installation.</p> <p>FY 2024 Plans: Continue integration engineering and procurement of prototype hardware, and initiate logistics product development for M-CS23 on the DVHA1 and DVHA0.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to completion of some integration engineering efforts.</p> | | 0.661 | 30.099 | 9.328 |
| <p>Title: Stryker Network Modernization Testing</p> | | 0.453 | 4.220 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) EE2 / <i>Stryker Improvement</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>Description: Government and Contractor support for developmental and operational testing of the Integrated Tactical Network (ITN), Integrated Visual Augmentation System (IVAS) vehicle support kit, and Tactical Cloud Package (TCP).</p> <p>FY 2023 Plans: Government and Contractor support for executing system level testing to achieve all safety and interoperability certifications to field the installation kits and provision components for the supply system.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease required to allow Engineering Designs to mature to Critical Design maturity and A-kit prototypes kits to be built for safety confirmation and interoperability certification to enable fielding installation kits and provision components for log products.</p> | | | | |
| <p>Title: Stryker DVH A1 ECP Testing</p> <p>Description: Government and Contractor testing for developmental, operational and live fire in support of DVH A1 ECP.</p> | | 0.208 | - | - |
| <p>Title: Stryker Lethality ECPs Contractor Support to Test</p> <p>Description: Contractor support to Lethality ECPs upgrade testing, to include system troubleshooting, maintenance, repair of prototypes during execution of tests, and Failure Analysis and Corrective Action Reporting (FACAR).</p> <p>FY 2023 Plans: Contractor technical support (system troubleshooting, maintenance and repair of prototypes during execution of tests) to Lethality ECPs developmental test.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to the completion of testing efforts.</p> | | 0.626 | 0.031 | - |
| <p>Title: Stryker Network Modernization Contractor Support to Test</p> <p>Description: Government and Contractor support for integration of the Integrated Tactical Network (ITN), Integrated Visual Augmentation System (IVAS) vehicle support kit, and Tactical Cloud Package (TCP) as part of Mounted Capability Set 23 (MCS23) at the System of Systems level.</p> <p>FY 2023 Plans: Contractor technical support for integration of the Integrated Tactical Network (ITN), Integrated Visual Augmentation System (IVAS) vehicle support kit, and Tactical Cloud Package (TCP) as part of Mounted Capability Set 23 (MCS23) at the System of Systems level.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> | | - | 2.100 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) EE2 / <i>Stryker Improvement</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Decrease due to some completion of test efforts. | | | |
| Title: Stryker Predictive Logistics (Engineering/Prototypes) Description: Readiness / Training-Rapid Fielding of Digitization of Stryker, Army Rapid Sustainment Improvement Process (RSIP). Develop two-way interface between Global Combat Support System - Army (GCSS - Army) and the Operator Tablet to support data transfers of maintenance work order, parts ordering and updating of maintenance plans. Further development will incorporate health data elements from platform diagnostics. FY 2024 Plans: Develop two-way interface between Global Combat Support System - Army (GCSS - Army) and the Operator Tablet in support of the Army's Prognostic and Predictive Maintenance (PPMx) vision. FY 2023 to FY 2024 Increase/Decrease Statement: This is a new effort in FY24 in support of the Department of Army Rapid Sustainment Improvement Process (RSIP). | - | - | 4.700 |
| Title: SIBR STTR Transfer Description: Funding transferred in accordance with Title 15 USC 638. FY 2023 Plans: Funding transferred in accordance with Title 15 USC 638. FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638. | 1.130 | 2.430 | - |
| Accomplishments/Planned Programs Subtotals | 29.837 | 66.589 | 24.844 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • GM0100: <i>Stryker (Mod)</i> | - | - | 0.000 | - | 0.000 | 78.094 | 82.614 | 89.360 | 92.722 | Continuing | Continuing |
| • G85200: <i>Stryker Upgrade</i> | 1,082.828 | 891.171 | 614.282 | - | 614.282 | 654.326 | 865.441 | 816.703 | 860.055 | Continuing | Continuing |

Remarks
23 March 2018 Army Requirements Oversight Council (AROC) decision to exchange all remaining flat-bottom brigades results in continuing exchange production beginning in FY 2018 funded in Stryker Upgrade (G85200). Stryker MOD (GM0100) will support Command Post Integrated Infrastructure (CPI2) platform procurement beginning in FY 2025.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) EE2 / <i>Stryker Improvement</i> |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|---|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| In FY 2022, funding in the amount of \$0.183 million for manpower was realigned to Operation and Maintenance. Program support costs have been accurately updated to reflect the realignments. | | | | | | | | | | | |

D. Acquisition Strategy

The Stryker ECP 1 effort will buy back the vehicle space, weight, and power margin lost due to the addition of numerous kits in response to eleven years of war (20-combat rotations & 37+ million total miles), in order to allow integration of the future network (as directed by VCSA in August 2011) without further degrading the performance of the platform. In May 2012, Stryker ECP 1 program (Phase I) was approved, permitting preliminary design and integration efforts on both the Flat Bottom (FB) and DVH variants. In March 2013, Phase II was approved continuing design and integration of ECP 1 mechanical power, electrical power generation, chassis upgrades, and the in-vehicle network upgrades. Based on additional testing conducted in the summer of 2013, the decision was made to focus ECP 1 efforts on the DVH platform and defer efforts on flat-bottom Stryker vehicles. The effort has subsequently been renamed the Stryker DVH A1 ECP. The DVH A1 ECP Phase II contract, awarded November 25, 2013, continued development engineering, prototype build test and evaluation. The initial DVH A1 ECP production contract was awarded in October 2016 (Sole-Source Firm Fixed Price arrangement). A second and third buy of DVH A1 ECP vehicles was awarded as a Fixed Price Incentive Fee arrangement. A March 2018 AROC decision was made to pure fleet the Stryker brigades to DVH with the initial approval for 6 DVH A1 brigades. The objective acquisition strategy is to annually procure 1/2 of a brigade.

On July 2, 2015, Army Systems Acquisitions and Review Council (ASARC) authorization was granted to execute the Stryker 30mm ICVD ONS effort. 30mm ICVD Engineering, Manufacturing, and Development (EMD) contracts for Non-Recurring Engineering (NRE) and Logistics Products Development/Test Support were awarded in January 2016 and May 2016, respectively (Cost Plus Incentive-Fee basis). The 30mm ICVD ONS Production/Retrofit contract was awarded in May 2016 through an Undefined Contract Action (UCA). Definitization of the Fixed Price Incentive Fee (FPIF) Production contract occurred in March 2017.

The Stryker Lethality ECP efforts will focus on the integration of a suite of complementary Mission Equipment Package MEP lethality upgrades, which include the CROWS-J, ATGM target acquisition optics, integration of emerging and existing technologies such as the Fire Direction Center requirement, Integrated Visual Augmentation System (IVAS), and other Stryker-based platform solutions, as well as additional capabilities that will improve the suppressive fire and armored vehicle engagement capabilities across the Army's SBCTs. Army Acquisition Executive (AAE) approval to initiate the Stryker CROWS-J and ATGM ECP efforts was received in a September 30, 2016, Acquisition Decision Memorandum (ADM). A ICVVA1-30mm decision was made in March 2019. The ICVVA1-30mm effort awarded design studies to multiple vendors and evaluated the bid samples and awarded a production ready solution meeting requirements at the best value to the Army. To improve platform survivability fleet wide, 360 Situational Awareness is being developed by integrating existing technologies, for fleet wide installation over a period of six years to allow the occupants during both open and closed hatch operations to visualize their immediate surrounding while stationary and on the move in adverse weather conditions.

In 2016, the Army approved the FDC requirement and the Field Artillery Battalion TAC using excess Flat Bottom Hull (FBH) Stryker during Force Design Update (FDU) process. Following the March 2018 Pure fleet AROC decision, Force Design Division (FDD) identified the Double V Hull A1 (DVH A1) as the platform for the FDC.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) EE2 / <i>Stryker Improvement</i> |
|--|--|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Project Management Office (PMO) | MIPR | PEO GCS/TACOM : Various | 68.878 | 4.660 | Jan 2022 | 2.424 | Jan 2023 | 3.290 | Jan 2024 | - | | 3.290 | 17.797 | 97.049 | - |
| SBIR/STTR Transfer | TBD | various : various | - | - | | 2.430 | Feb 2023 | - | | - | | - | 0.000 | 2.430 | - |
| Subtotal | | | 68.878 | 4.660 | | 4.854 | | 3.290 | | - | | 3.290 | 17.797 | 99.479 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Stryker DVH A1 ECP Development | SS/CIPIF | GDLS, MI : Various | 174.652 | 3.728 | Jan 2022 | - | | - | | - | | - | 0.000 | 178.380 | - |
| Stryker Lethality ECPs Development | C/Various | PM CSW; PM CCWS : Various | 54.500 | 3.415 | Jan 2022 | 4.448 | Jan 2023 | - | | - | | - | 0.000 | 62.363 | - |
| Stryker Survivability Enhancement | Various | US Army CCDC GVSC, Various : Various | - | 1.771 | Jul 2022 | 8.172 | Feb 2023 | 3.727 | Feb 2024 | - | | 3.727 | 0.700 | 14.370 | - |
| Stryker Power System Development | MIPR | US Army CCDC GVSC, Various : Various | 13.268 | 4.398 | Mar 2022 | 1.086 | Mar 2023 | 1.052 | Mar 2024 | - | | 1.052 | 0.000 | 19.804 | - |
| Stryker Fire Direction Center Variant Development | TBD | TBD : TBD | - | 2.716 | Sep 2022 | 5.073 | Jun 2023 | 0.270 | Jun 2024 | - | | 0.270 | 28.560 | 36.619 | - |
| Stryker Network Modernization Development | TBD | TBD : TBD | 0.438 | 0.661 | | 30.099 | Jan 2023 | 9.328 | Jan 2024 | - | | 9.328 | 0.000 | 40.526 | - |
| Stryker Predictive Logistics Development | TBD | TBD : TBD | - | - | | - | | 4.700 | Jan 2024 | - | | 4.700 | 0.000 | 4.700 | - |
| Subtotal | | | 242.858 | 16.689 | | 48.878 | | 19.077 | | - | | 19.077 | 29.260 | 356.762 | N/A |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) EE2 / <i>Stryker Improvement</i> |
|--|--|--|

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Stryker Lethality ECPs Testing | MIPR | Army Test Centers : Various | 30.628 | 3.720 | Dec 2021 | 0.080 | | - | | - | | - | 0.000 | 34.428 | - |
| Stryker Survivability Enhancement | MIPR | Army Test Centers : Various | 2.543 | 0.453 | Dec 2021 | 0.040 | Dec 2022 | 0.505 | Dec 2023 | - | | 0.505 | 0.705 | 4.246 | - |
| Stryker Power System Testing | MIPR | Army Test Centers : Various | 4.702 | 3.028 | Dec 2021 | 5.897 | Dec 2022 | 1.972 | Dec 2023 | - | | 1.972 | 0.000 | 15.599 | - |
| Stryker Fire Direction Center Variant Testing | TBD | TBD : TBD | - | - | | 0.489 | Jul 2023 | - | | - | | - | 9.224 | 9.713 | - |
| Stryker Network Modernization Testing | TBD | TBD : TBD | 2.862 | 0.453 | Dec 2021 | 4.220 | Apr 2023 | - | | - | | - | 0.000 | 7.535 | - |
| Stryker Network Modernization Contractor Support to Test | TBD | TBD : TBD | 0.212 | - | | 2.100 | Apr 2023 | - | | - | | - | 0.000 | 2.312 | - |
| Stryker DVH A1 ECP Testing | MIPR | Army Test Centers : Various | 42.621 | 0.208 | | - | | - | | - | | - | 0.000 | 42.829 | - |
| Stryker Lethality ECPs Contractor Support to Test | TBD | TBD : TBD | 10.719 | 0.626 | | 0.031 | | - | | - | | - | 0.000 | 11.376 | - |
| Subtotal | | | 94.287 | 8.488 | | 12.857 | | 2.477 | | - | | 2.477 | 9.929 | 128.038 | N/A |

| Project Cost Totals | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|--------------------|----------------|----------------|---------------------|--------------------|----------------------|-------------------------|-------------------|---------------------------------|
| | 406.023 | 29.837 | 66.589 | 24.844 | - | 24.844 | 56.986 | 584.279 | N/A |

Remarks

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) EE2 / <i>Stryker Improvement</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|---|---|---|---|------------|---|---|---|------------|---|---|---|------------|---|---|---|------------|---|---|---|------------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Stryker DVH A1 ECP (Phase II) | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | |
| | DVH A1 ECP Design/Prototype/Logistics Products | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker DVH A1 ECP Production (Phase III) | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | |
| | DVH A1 ECP Production | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker CROWS-J ECP Design/Prototype/Logistic Products | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | |
| | CROWS-J ECP Design/Prototype/Logistics Products | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker CROWS-J ECP Production/Retrofit | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | |
| | CROWS-J ECP Production/Retrofit | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker CROWS-J ECP First Unit Equipped (FUE) | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | CROWS-J ECP FUE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker ATGM ECP Production/Retrofit | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | |
| | ATGM ECP Production/Retrofit | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker ICVVA1-30mm Gun Production | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | |
| | ICVVA1-30mm Gun Production | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker ICVVA1-30mm Mission Equipment Package (MEP) Production | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | |
| | ICVVA1-30mm Mission Equipment Package (MEP) Production | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker ICVVA1-30mm Safety/Perf./Live Fire/Electronics Testing | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | |
| | ICVVA1-30mm Safety/Perf./Live Fire/Electronics Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker ICVVA1-30mm Fielding | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | |
| | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | |
| | ICVVA1-30mm Fielding | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker ICVVA1-30mm Design/Prototype/Logistic Products | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | |
| | ICVVA1-30mm Design/Prototype/Logistic Products | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker Lethality ECP Inertial Navigation Unit Sensor Design/Prototype/Logistics | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | |
| | Inertial Navigation Unit Sensor Design/Prototypes/Logistics | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker Lethality ECP Inertial Navigation Unit Sensor Testing | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | |
| | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | |
| | Inertial Navigation Unit Sensor Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) EE2 / <i>Stryker Improvement</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | | | | | | | | | | | | | | | | | |
|---|--|---|---|---|---|---|---|---|--|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | | | | | | | | | | | | | |
| Stryker Power System | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Power System Design/Prototype/Logistics Products | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker Fire Direction Center Variant (FDC) Design/Proto... | | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | FDC Design/Prototype/Logistics Products | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker 360 Situational Awareness: Design/Test/Prod/Logi... | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 360 Situational Awareness Design/Test/Prod/Logistics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker Network Modernization Development | | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Network Modernization Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker Network Modernization Testing | | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Network Modernization Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stryker Predictive Logistics Development | | | | | | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | Stryker Predictive Logistics Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203735A / <i>Combat Vehicle Improvement Programs</i> | Project (Number/Name) EE2 / <i>Stryker Improvement</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Stryker DVH A1 ECP (Phase II) | 1 | 2014 | 3 | 2022 |
| Stryker DVH A1 ECP Production (Phase III) | 1 | 2017 | 4 | 2030 |
| Stryker CROWS-J ECP Design/Prototype/Logistic Products | 1 | 2019 | 3 | 2023 |
| Stryker CROWS-J ECP Production/Retroft | 3 | 2019 | 4 | 2029 |
| Stryker CROWS-J ECP First Unit Equipped (FUE) | 2 | 2022 | 2 | 2022 |
| Stryker ATGM ECP Production/Retroft | 1 | 2020 | 4 | 2024 |
| Stryker ICVVA1-30mm Gun Production | 4 | 2020 | 4 | 2025 |
| Stryker ICVVA1-30mm Mission Equipment Package (MEP) Production | 3 | 2021 | 1 | 2026 |
| Stryker ICVVA1-30mm Safety/Perf./Live Fire/Electronics Testing | 4 | 2021 | 1 | 2025 |
| Stryker ICVVA1-30mm Fielding | 2 | 2025 | 1 | 2028 |
| Stryker ICVVA1-30mm Design/Prototype/Logistic Products | 2 | 2019 | 4 | 2025 |
| Stryker Lethality ECP Inertial Navigation Unit Sensor Development | 3 | 2022 | 3 | 2024 |
| Stryker Lethality ECP Inertial Navigation Unit Sensor Testing | 3 | 2023 | 2 | 2024 |
| Stryker Power System | 2 | 2019 | 4 | 2025 |
| Stryker Fire Direction Center Variant (FDC) Design/Prototype/Logistics Products | 4 | 2022 | 2 | 2027 |
| Stryker 360 Situational Awareness: Design/Test/Prod/Logistics | 3 | 2021 | 3 | 2026 |
| Stryker Network Modernization Development | 2 | 2023 | 3 | 2026 |
| Stryker Network Modernization Testing | 3 | 2023 | 2 | 2026 |
| Stryker Predictive Logistics Development | 2 | 2024 | 4 | 2025 |

Note
Schedule includes the major Stryker RDTE and Procurement (WTCV) funded activities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|--|--|
| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0203743A / 155mm Self-Propelled Howitzer Improvements |
|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 168.683 | 116.510 | 122.902 | - | 122.902 | 149.968 | 111.299 | 68.113 | 68.872 | 0.000 | 806.347 |
| FF9: PIM Improvement Program | - | 168.683 | 116.510 | 122.902 | - | 122.902 | 149.968 | 111.299 | 68.113 | 68.872 | 0.000 | 806.347 |

A. Mission Description and Budget Item Justification

The Extended Range Cannon Artillery (ERCA) modernization effort integrates emerging technologies to include: a new cannon, gun mount, gun drive systems, fire control systems, and rate of fire system improvements capability onto the M109A7 Self-Propelled Howitzer platform. ERCA improves lethality through increased range and increased rate of fire while also using mature technology to improve mobility, survivability, reliability, supportability, and lethality. This effort will analyze and evaluate the impact of the new cannon technology and make modifications to the cab, mobility and electronic architecture required to support ammunition automation, remote firing, and remote movement on the platform. This effort will also develop, evaluate, build, and test prototypes. Funding also supports work being completed at the Watervliet Arsenal (WVA) in Watervliet, NY.

B. Program Change Summary (\$ in Millions)

| | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> |
|-------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 175.076 | 136.680 | 99.481 | - | 99.481 |
| Current President's Budget | 168.683 | 116.510 | 122.902 | - | 122.902 |
| Total Adjustments | -6.393 | -20.170 | 23.421 | - | 23.421 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | -20.170 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -6.393 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 23.421 | - | 23.421 |

Change Summary Explanation

FY 2024 funding increase reflects additional developmental engineering, test, and prototype retrofit activities required to address safety and functionality challenges.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203743A / 155mm Self-Propelled Howitzer Improvements | Project (Number/Name) FF9 / PIM Improvement Program |
|--|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| FF9: PIM Improvement Program | - | 168.683 | 116.510 | 122.902 | - | 122.902 | 149.968 | 111.299 | 68.113 | 68.872 | 0.000 | 806.347 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Extended Range Cannon Artillery (ERCA) modernization effort integrates emerging technologies to include: a new cannon, gun mount, gun drive systems, fire control systems, and rate of fire system improvements capability onto the M109A7 Self-Propelled Howitzer platform. ERCA improves lethality through increased range and increased rate of fire while also using mature technology to improve mobility, survivability, reliability, supportability, and lethality. This effort will analyze and evaluate the impact of the new cannon technology and make modifications to the cab, mobility and electronic architecture required to support ammunition automation, remote firing, and remote movement on the platform. This effort will also develop, evaluate, build, and test prototypes. Funding also supports work being completed at the Watervliet Arsenal (WVA) in Watervliet, NY.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| <p>Title: ERCA Prototype Development and Build</p> <p>Description: Funds support the ERCA range and ERCA Rate of Fire development costs which include continuously improving the design and implementing changes to ERCA prototypes as informed by testing and the operational assessment.</p> <p>FY 2023 Plans: Completion of developmental engineering efforts and ERCA prototype builds required for the First Unit Issued battalion in 1st quarter of FY 2025.</p> <p>FY 2024 Plans: Continuation of developmental engineering efforts, ERCA prototype improvements, Milestone C documentation, First Unit Issued support activities, rate of fire preparation, and transition to Milestone C.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 funding increase reflects additional developmental engineering, hardware procurement, and prototype retrofit activities required to address safety and functionality challenges.</p> | 101.219 | 75.683 | 76.563 |
| <p>Title: Program Management</p> <p>Description: Funding is provided for all Program Management efforts on the Extended Range Cannon Artillery effort.</p> <p>FY 2023 Plans: Continue the development and production for all required documents, office staff and engineering IPT development.</p> <p>FY 2024 Plans:</p> | 12.700 | 13.152 | 13.861 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203743A / 155mm Self-Propelled Howitzer Improvements | Project (Number/Name) FF9 / PIM Improvement Program |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Continue the development and generate all required documents, office staff and engineering IPT development for Range and Rate of Fire efforts. FY 2023 to FY 2024 Increase/Decrease Statement: Increase due to slight increase in development and production costs. | | | |
| Title: Test and Evaluation Description: This funding supports all Testing and Evaluation the Extended Range Cannon Artillery effort. FY 2023 Plans: Conduct Developmental Testing. These events include all test execution, data collection, contractor and logistics support for mobility, reliability and firings tests. FY 2024 Plans: Conduct Developmental Testing in support of Root Cause Corrective Action (RCCA) validation efforts. These events include all test execution, data collection, contractor and logistics support for safety, mobility, reliability and firings tests. FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 funding increase reflects additional testing activities required to address safety and functionality challenges. | 54.764 | 23.422 | 32.478 |
| Title: SBIR/STTR Transfer FY 2023 Plans: SBIR/STTR Transfer FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638. | - | 4.253 | - |
| Accomplishments/Planned Programs Subtotals | 168.683 | 116.510 | 122.902 |

| |
|--|
| C. Other Program Funding Summary (\$ in Millions) N/A Remarks |
| D. Acquisition Strategy Extended Range Cannon Artillery (ERCA) used the approved National Defense Authorization Act (NDAA) Section 804 Middle Tier Acquisition Authority for development efforts as the program moves forward and transitions to a program of record to field the ERCA system. |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | | |
|--|------------------------|--------------------------------|-------------|--|------------|---------|------------|-------------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|--|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | | |
| 2040 / 7 | | | | PE 0203743A / 155mm Self-Propelled Howitzer Improvements | | | | FF9 / PIM Improvement Program | | | | | | | | |
| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| SBIR/STTR Transfer | TBD | Various : Various | - | - | | 4.253 | | - | | - | | - | 0.000 | 4.253 | - | |
| Subtotal | | | - | - | | 4.253 | | - | | - | | - | 0.000 | 4.253 | N/A | |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| ERCA Range - Developmental Eng | Various | Various : Various Locations | 178.494 | 62.862 | Jan 2022 | 47.391 | Jan 2023 | 42.275 | Jan 2024 | - | | 42.275 | Continuing | Continuing | Continuing | |
| ERCA Range - Prototype Build | Various | Various : Various Locations | 133.264 | 33.436 | Jan 2022 | 28.292 | Jan 2023 | 34.288 | | - | | 34.288 | Continuing | Continuing | Continuing | |
| ERCA Rate of Fire - Developmental Eng | Various | Various : Various Locations | 20.195 | 4.921 | Feb 2022 | - | | - | | - | | - | Continuing | Continuing | Continuing | |
| Subtotal | | | 331.953 | 101.219 | | 75.683 | | 76.563 | | - | | 76.563 | Continuing | Continuing | N/A | |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| PMO/PEO Support | MIPR | PM/PEO PIM : Various | 24.167 | 12.700 | Oct 2021 | 13.152 | Oct 2022 | 13.861 | Oct 2023 | - | | 13.861 | Continuing | Continuing | Continuing | |
| Subtotal | | | 24.167 | 12.700 | | 13.152 | | 13.861 | | - | | 13.861 | Continuing | Continuing | N/A | |
| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| Test and Evaluation | MIPR | Various - OGAs : Various | 82.880 | 54.764 | Oct 2021 | 23.422 | Oct 2022 | 32.478 | Oct 2023 | - | | 32.478 | Continuing | Continuing | Continuing | |
| Subtotal | | | 82.880 | 54.764 | | 23.422 | | 32.478 | | - | | 32.478 | Continuing | Continuing | N/A | |

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|---|--|---|
| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203743A / 155mm Self-Propelled Howitzer Improvements | Project (Number/Name) FF9 / PIM Improvement Program |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Range - Developmental Engineering | 2 | 2018 | 4 | 2025 |
| Range - Integration OTA Award | 4 | 2019 | 4 | 2019 |
| Range - Prototype Manufacturing | 4 | 2018 | 4 | 2024 |
| Range - Developmental Testing and Operational Assessment | 1 | 2019 | 1 | 2026 |
| Range - First Unit Issued | 1 | 2025 | 1 | 2025 |
| Milestone C | 2 | 2026 | 2 | 2026 |
| Rate of Fire - Developmental Engineering | 4 | 2020 | 2 | 2029 |
| Rate of Fire - Prototype Manufacturing | 2 | 2028 | 2 | 2030 |
| Rate of Fire - Developmental Testing and Operational Assessment | 2 | 2029 | 4 | 2032 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|--|---|
| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/Product Improvement Programs |
|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | 0.000 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 10.000 |
| EB6: MQ-1C Gray Eagle MODS | - | 10.000 | - | - | - | - | - | - | - | - | 0.000 | 10.000 |

A. Mission Description and Budget Item Justification

The MQ-1C Gray Eagle provides the Army with an extended range, multi-purpose (ERMP) Unmanned Aircraft System (UAS); capable of executing reconnaissance, security, attack, and intelligence collection missions in the range of military operations (ROMO). Sensors/payloads include an Electro-Optical/Infrared/Laser Designator (EO/IR/LD), Synthetic Aperture Radar/Moving Target Indicator (SAR/MTI), Signals Intelligence (SIGINT), and HELLFIRE missiles; providing a near all-weather mission capability. MQ-1C Gray Eagle is a dedicated, assured, multi-mission UAS fielded to all Army Divisions, Intelligence and Security Command and Army Special Operations Command in support of the commander's warfighting priorities within multi-domain battle operations.

Currently MQ-1C Gray Eagle high fuel efficiency engines are undergoing a propulsion reliability effort which will reduce MQ-1C Gray Eagle Return to Base events and decrease the likelihood of engine related aircraft mishaps. This modernization effort will increase operational readiness and posture Gray Eagle to support multi-domain.

The Ground Based Sense And Avoid (GBSAA) System provides an alternative means of compliance with FAR Part 91.113 requirement for an aircraft to "see and avoid" other aircraft while in the National Airspace System. This capability enhances the warfighter's ability to train with the Gray Eagle at CONUS fielding locations.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 10.000 | 0.000 | 0.000 | - | 0.000 |
| Current President's Budget | 10.000 | 0.000 | 0.000 | - | 0.000 |
| Total Adjustments | 0.000 | 0.000 | 0.000 | - | 0.000 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: EB6: MQ-1C Gray Eagle MODS

Congressional Add: Ground Based Sense And Avoid (GBSAA)

| FY 2022 | FY 2023 |
|---------|---------|
| 10.000 | - |

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|---|-------------------------|
| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
|---|-------------------------|

| | |
|---|--|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0203744A / <i>Aircraft Modifications/Product Improvement Programs</i> |
|---|--|

Congressional Add Details (\$ in Millions, and Includes General Reductions)

| | FY 2022 | FY 2023 |
|--|---------|---------|
| Congressional Add Subtotals for Project: EB6 | 10.000 | - |
| Congressional Add Totals for all Projects | 10.000 | - |

Change Summary Explanation

FY22 Congressional plus-up of \$10.0M will be used to increase the capability of the Ground Based Sense And Avoid (GBSAA) System to provide better support for training activities, to investigate new solutions aimed at addressing hardware obsolescence, and to increase flexibility and useability of GBSAA system by allowing quicker configuration/setup and SATCOM capability."

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|---|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/Product Improvement Programs | Project (Number/Name) EB6 / MQ-1C Gray Eagle MODS |
|--|---|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| EB6: MQ-1C Gray Eagle MODS | - | 10.000 | - | - | - | - | - | - | - | - | 0.000 | 10.000 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

Note

FY22 Congressional plus-up of \$10.0M will be used to increase the capability of the Ground Based Sense And Avoid (GBSAA) System to provide better support for training activities, to investigate new solutions aimed at addressing hardware obsolescence, and to increase flexibility and useability of GBSAA system by allowing quicker configuration/setup and SATCOM capability.

A. Mission Description and Budget Item Justification

The MQ-1C Gray Eagle provides the Army with an extended range, multi-purpose (ERMP) Unmanned Aircraft System (UAS); capable of executing reconnaissance, security, attack, and intelligence collection missions in the range of military operations (ROMO). Sensors/payloads include an Electro-Optical/Infrared/Laser Designator (EO/IR/LD), Synthetic Aperture Radar/Moving Target Indicator (SAR/MTI), Signals Intelligence (SIGINT), and HELLFIRE missiles; providing a near all-weather mission capability. MQ-1C Gray Eagle is a dedicated, assured, multi-mission UAS fielded to all Army Divisions, Intelligence and Security Command and Army Special Operations Command in support of the commander's warfighting priorities within multi-domain battle operations.

Currently the MQ-1C Gray Eagle high fuel efficiency engine is undergoing a propulsion reliability effort, which will reduce MQ-1C Gray Eagle Return to Base events and decrease the likelihood of engine related aircraft mishaps. Additionally, this effort will increase operational readiness for the Operational Commander.

The Ground Based Sense And Avoid (GBSAA) System provides an alternative means of compliance with FAR Part 91.113 requirement for an aircraft to "see and avoid" other aircraft while in the National Airspace System. This capability enhances the warfighter's ability to train with the Gray Eagle at CONUS fielding locations.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 |
|--|---------|---------|
| Congressional Add: Ground Based Sense And Avoid (GBSAA) | 10.000 | - |
| FY 2022 Accomplishments: FY22 Congressional plus-up of \$10.0M will be used to increase the capability of the GBSAA System to provide better support for training activities, to investigate new solutions aimed at addressing hardware obsolescence, and to increase flexibility and useability of GBSAA system by allowing quicker configuration/setup and SATCOM capability. | | |
| Congressional Adds Subtotals | 10.000 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | Date: March 2023 |
|--|-------------------------|

| | | |
|--|---|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/Product Improvement Programs | Project (Number/Name) EB6 / MQ-1C Gray Eagle MODS |
|--|---|---|

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

| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-----------------------------------|---------|---------|-----------------|----------------|------------------|---------|---------|---------|---------|---------------------|------------|
| • AA6601: <i>Gray Eagle Mods2</i> | 123.143 | 133.038 | 14.959 | - | 14.959 | 3.916 | 5.138 | 5.668 | 10.782 | 0.000 | 296.644 |

Remarks

D. Acquisition Strategy

An ERMP Operational Requirement Document (ORD) was approved by the Joint Requirement Oversight Council (JROC) 6 Apr 2005. Milestone B occurred on 20 Apr 2005, and the System Development and Demonstration contract was awarded 8 Aug 2005, as a result of a competitive solicitation which included a vendor system capabilities demonstration. A Capabilities Production Document (CPD) was approved 14 Mar 2009. MQ-1C Gray Eagle completed Follow-On Test and Evaluation (FOTE) on 12 Jun 2015.

This RDTE element funds a propulsion reliability improvement with the development of the Heavy Fuel Engine (HFE) 2.0 engine system. The current MQ-1C aircraft engine has experienced material failures that have resulted in aircraft mishaps (loss of aircraft) and a high number lost flight hours due to Return to Base (RTB) events. HFE 2.0 implements aviation grade components and focused reliability improvements that will address previous material failures and RTB drivers. Additionally, the Army was notified by the original equipment manufacturer (OEM) that the current engine core is obsolete and the current manufacture will no longer supply the engine core. HFE 2.0 also resolves this obsolescence/supply issue. In 2018, the Army issued an RFI to industry to assess the state of engine technology and availability of a COTS/ NDI engine solution that could meet MQ-1C capability needs and requirements. The primary goal of the RFI was to establish an alternative engine for MQ-1C that is reliable and could be integrated and qualified in a two year timeframe to resolve critical reliability and supply issues with the current engine. Upon completion of the RFI evaluations, HFE 2.0 engine systems will be procured and fielded through attrition. As a result of the Army's RFI and Industry day event, it was determined that the HFE 2.0 was the only engine to meet requirements for an alternative MQ-1C engine. Funded RDTE elements will support completion of integration, test, and qualification of the HFE 2.0 engine system on the MQ-1C aircraft. This effort will secure engine supply and result in greater propulsion system reliability and increased operational readiness to the commander in the field. Funds are planned for award on the Gray Eagle Technical Services contract as a Technical Services Memorandum (TSM) task order, and as a Military Interdepartmental Purchase Requisitions (MIPRs) to various other Government agencies. Upon completion of qualification, HFE 2.0 engine systems will be procured under the PBL contract and fielded through attrition.

This RDTE effort funds increased capability for the Ground Based Sense And Avoid (GBSAA) system to include better performance in a terminal environment, alternative methods of obtaining telemetry data which will enable operations with classified systems, and address new hardware - which will provide better performance while also addressing system obsolescence issues. The current GBSAA system is not able to support classified operations, and by including an "ADS-B as ownship" solution in the software development, support for classified operations will be possible. During the 5+ years of operation of the GBSAA system at 5 fielding sites, issues with excessive alerts in congested airspace have been noticed. Part of the Block 2 effort will refine the maneuver algorithms to adjust for areas where air traffic is allowed to be in a closer proximity to other air traffic. Units currently utilizing the GBSAA system have requested the ability to conduct a quicker set up and operation of the system for systems with transportable radars systems. A portion of this funding will be used to investigate and implement the best way to accomplish this task.

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|--|---|---|-------------------------|
| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/Product Improvement Programs | Project (Number/Name) EB6 / MQ-1C Gray Eagle MODS | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|------------|---|---|---|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Propulsion Reliability | [REDACTED] | | | | [REDACTED] | | | | | | | | | | | | | | | | | | | | | | | |
| Ground Based Sense And Avoid (GBSAA) System Enhancements | [REDACTED] | | | | [REDACTED] | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203744A / Aircraft Modifications/Product Improvement Programs | Project (Number/Name) EB6 / MQ-1C Gray Eagle MODS |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Alternate Munitions Integration | 2 | 2017 | 4 | 2020 |
| Engineering and Software Development - MQ-1 Gray Eagle | 2 | 2017 | 4 | 2020 |
| Training Development and Software/System Testing - MQ-1 Gray Eagle | 3 | 2017 | 4 | 2020 |
| Survivability | 2 | 2018 | 4 | 2020 |
| Propulsion Reliability | 2 | 2020 | 3 | 2023 |
| Ground Based Sense And Avoid (GBSAA) System Enhancements | 3 | 2022 | 3 | 2024 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|--|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0203752A / <i>Aircraft Engine Component Improvement Program</i> |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|------------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 0.127 | 0.148 | 0.146 | - | 0.146 | 0.146 | 0.146 | 0.147 | 0.149 | 0.000 | 1.009 |
| 106: <i>A/C Compon Improv Prog</i> | - | 0.127 | 0.148 | 0.146 | - | 0.146 | 0.146 | 0.146 | 0.147 | 0.149 | 0.000 | 1.009 |

A. Mission Description and Budget Item Justification

The Aircraft Engine Component Improvement Program (CIP) develops, tests, and qualifies improvements to aircraft engine components to correct service-revealed deficiencies, improve flight safety, enhance readiness and reduce operating and support (O&S) costs. In addition, CIP provides the test vehicles for the testing and qualification efforts required as a part of the Army's Critical Safety Item (CSI) program. Non-program specific Auxiliary Power Unit (APU) as well as Unmanned Aerial Vehicle (UAV) safety and readiness issues are also addressed under this Program Element.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 0.132 | 0.148 | 0.149 | - | 0.149 |
| Current President's Budget | 0.127 | 0.148 | 0.146 | - | 0.146 |
| Total Adjustments | -0.005 | 0.000 | -0.003 | - | -0.003 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.005 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -0.003 | - | -0.003 |

Change Summary Explanation

Decreased funding to support higher Army priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203752A / Aircraft Engine Component Improvement Program | Project (Number/Name) 106 / A/C Compon Improv Prog |
|--|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| 106: A/C Compon Improv Prog | - | 0.127 | 0.148 | 0.146 | - | 0.146 | 0.146 | 0.146 | 0.147 | 0.149 | 0.000 | 1.009 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Aircraft Engine Component Improvement Program (CIP) develops, tests, and qualifies improvements to aircraft engine components to correct service-revealed deficiencies, improve flight safety, enhance readiness and reduce operating and support (O&S) costs. In addition, CIP provides the test vehicles for the testing and qualification efforts required as a part of the Army's Critical Safety Item (CSI) program. Non-program specific Auxiliary Power Unit (APU) as well as Unmanned Aerial Vehicle (UAV) safety and readiness issues are also addressed.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| <p>Title: In-House Support</p> <p>Description: In-house support for the CIP engineers. Contracting support for CIP contracts.</p> <p>FY 2023 Plans: Continue to provide in-house engineering support for UAV engine CIP programs.</p> <p>FY 2024 Plans: Will continue to provide in-house engineering support for UAV engine CIP programs.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding changes reflect planned lifecycle of this effort</p> | 0.054 | 0.055 | 0.057 |
| <p>Title: UAS Fuel System Component Evaluation</p> <p>Description: This program is to improve aircraft readiness and reliability by mitigating the root cause of common component failures.</p> <p>FY 2023 Plans: Continue UAS component investigations to support airworthiness, reliability and performance improvements of the critical Unmanned Aerial Vehicle (UAV) components (e.g., Full Authority Digital Engine Controls (FADECs), fuel injectors, and high pressure fuel pumps) to determine root cause of occurrences which result in performance anomalies during aircraft operation.</p> <p>FY 2024 Plans:</p> | 0.073 | 0.093 | 0.089 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203752A / Aircraft Engine Component Improvement Program | Project (Number/Name) 106 / A/C Compon Improv Prog |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| UAS component investigations will continue to support airworthiness, reliability and performance improvements of the critical Unmanned Aerial Vehicle (UAV) components (e.g., Full Authority Digital Engine Controls (FADECs), fuel injectors, and high pressure fuel pumps) to determine root cause of occurrences which result in performance anomalies during aircraft operation. | | | |
| <i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Funding changes reflect planned lifecycle of this effort | | | |
| Accomplishments/Planned Programs Subtotals | 0.127 | 0.148 | 0.146 |

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

N/A

Remarks

D. Acquisition Strategy

Improved designs will be implemented via Engineering Change Proposal (ECP) and follow-on procurement or modification to a production contract to introduce the improved hardware.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203752A / Aircraft Engine Component Improvement Program | Project (Number/Name) 106 / A/C Compon Improv Prog |
|--|---|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| In-house Engineering | Allot | US Army DEVCOM AvMC : Redstone Arsenal, AL | 3.085 | 0.054 | Oct 2021 | 0.055 | Oct 2022 | 0.057 | Oct 2023 | - | | 0.057 | Continuing | Continuing | Continuing |
| Subtotal | | | 3.085 | 0.054 | | 0.055 | | 0.057 | | - | | 0.057 | Continuing | Continuing | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Gray Eagle UAS Turbocharger Compressor Blow-Off Valve | Various | ARL-Vehicle Technology Directorate : Aberdeen Proving Ground | 1.127 | 0.034 | Oct 2021 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| UAS Fuel System Component Evaluation | TBD | Army Research Lab : Aberdeen Proving Ground | - | 0.039 | Oct 2021 | 0.093 | Oct 2022 | 0.089 | Oct 2023 | - | | 0.089 | Continuing | Continuing | Continuing |
| Subtotal | | | 1.127 | 0.073 | | 0.093 | | 0.089 | | - | | 0.089 | Continuing | Continuing | N/A |

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | 4.212 | 0.127 | 0.148 | 0.146 | - | 0.146 | Continuing | Continuing | N/A |

Remarks

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|--|--|---|-------------------------|--|--|
| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | R-1 Program Element (Number/Name) PE 0203752A / Aircraft Engine Component Improvement Program | | Project (Number/Name) 106 / A/C Compon Improv Prog | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--------------------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| UAS Fuel System Component Evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203752A / Aircraft Engine Component Improvement Program | Project (Number/Name) 106 / A/C Compon Improv Prog |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| T700 Engine Spit Pit Testing | 1 | 2011 | 4 | 2012 |
| T700 Engine Temperature Survey | 2 | 2014 | 4 | 2015 |
| T55 Engine 1553 Engine Control Unit (ECU) | 2 | 2012 | 1 | 2013 |
| T55 Engine N1 Drive Line Redesign | 1 | 2010 | 4 | 2012 |
| T55 Engine ECU Block Upgrade | 2 | 2013 | 4 | 2015 |
| Auxiliary Power Units (APUs) | 1 | 2014 | 4 | 2015 |
| UAV Shadow Engine | 2 | 2014 | 4 | 2021 |
| T700 CSI Update | 1 | 2017 | 4 | 2017 |
| UAS Fuel System Component Evaluation | 1 | 2022 | 4 | 2028 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|--|--|
| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0203758A / Digitization |
|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 3.759 | - | 1.515 | - | 1.515 | 1.559 | 1.560 | 1.605 | 1.622 | Continuing | Continuing |
| 374: HOR Battlefield Digitizn | - | 3.759 | - | 1.515 | - | 1.515 | 1.559 | 1.560 | 1.605 | 1.622 | Continuing | Continuing |

A. Mission Description and Budget Item Justification

As the Army Equipping methodology transitions to the Army Modernization Enterprise or AME the information technology used to support Army Equipping must grow and change. The development of an upgraded Army Equipping Enterprise System (AE2S) will integrate and share programming data (dollars and quantities) with information from IT systems that support the Army Futures Command (AFC), ASA(ALT), ASA(FM&C) and Army G3/5/7. This data sharing will allow the AME to provide Army Senior Leaders with a complete picture of how well programs are executing, the impacts of programming decisions on Army current and future readiness and modernization, and help develop a road map needed to transition the current force to a fully modernize Army. The AE2S next generation capability requirements include a flexible data and software architectures that allows the user to integrate disparate data from differing architectures in order to develop new information that can be turned into actionable knowledge by senior leaders. The software architecture must have data visualization capabilities that allow the user to display data in ways that can articulate how AME decisions made impact warfighting effectiveness and plans.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 3.903 | 2.100 | 2.106 | - | 2.106 |
| Current President's Budget | 3.759 | 0.000 | 1.515 | - | 1.515 |
| Total Adjustments | -0.144 | -2.100 | -0.591 | - | -0.591 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | -2.100 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.144 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -0.591 | - | -0.591 |

Change Summary Explanation

FY2024 funds reduced to support higher Army priorities.

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0203758A / Digitization | | | | Project (Number/Name) 374 / HOR Battlefield Digitizn | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| 374: HOR Battlefield Digitizn | - | 3.759 | - | 1.515 | - | 1.515 | 1.559 | 1.560 | 1.605 | 1.622 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

As the Army Equipping methodology transitions to the Army Modernization Enterprise or AME the information technology used to support Army Equipping must grow and change. The development of an upgraded Army Equipping Enterprise System (AE2S) will integrate and share programming data (dollars and quantities) with information from IT systems that support the Army Futures Command (AFC), ASA(ALT), ASA(FM&C) and Army G3/5/7. This data sharing will allow the AME to provide Army Senior Leaders with a complete picture of how well programs are executing, the impacts of programming decisions on Army current and future readiness and modernization, and help develop a road map needed to transition the current force to a fully modernize Army. The AE2S next generation capability requirements include a flexible data and software architectures that allows the user to integrate disparate data from differing architectures in order to develop new information that can be turned into actionable knowledge by senior leaders. The software architecture must have data visualization capabilities that allow the user to display data in ways that can articulate how AME decisions made impact warfighting effectiveness and plans.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| <p>Title: Interoperability and Integration</p> <p>Description: Conducts independent analyses of Army, joint, and multinational interfaces, adherence to standards, implementation profiles, and interoperability baselines.</p> <p>FY 2024 Plans: Contractor will continue to conduct independent analyses of Army, joint, and multinational interfaces, adherence to standards, implementation profiles, and interoperability baselines.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY2024 funding increase to conduct independent analyses of interfaces, adherence to standards, implementation profiles and interoperability baselines.</p> | 0.901 | - | 0.315 |
| <p>Title: Operational Capability Analysis and Evaluation</p> <p>Description: Conducts iterative capability analyses and assessments consistent with CJCSI 3170 (JCIDS) and 6212 (Net Readiness) to ensure Army and joint program technical and operational requirements are consistent.</p> <p>FY 2024 Plans:</p> | 0.866 | - | 0.304 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203758A / Digitization | Project (Number/Name) 374 / HOR Battlefield Digitizn | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| Contractor will continue to conduct iterative capability analyses and assessments consistent with CJCSI 3170 (JCIDS) and 6212 (Net Readiness) to ensure Army and joint program technical and operational requirements are consistent. Efforts support Army and joint initiatives. FY 2023 to FY 2024 Increase/Decrease Statement: FY2024 funding increase to conduct capability analyses and assessments consistent with JCIDS and Net Readiness. | | | | |
| Title: Systems Architecture Development Description: Conducts broad concept studies with emphasis on interoperability and joint coalition operations. FY 2024 Plans: FFRDC contractor will continue to conduct broad concept studies with emphasis on interoperability and joint coalition operations. FY 2023 to FY 2024 Increase/Decrease Statement: FY2024 funding increase to conduct broad concept studies with emphasis on interoperability and joint coalition operations. | | 0.633 | - | 0.515 |
| Title: AE2S Software Description: Procures AE2S software integration and enhancements for the single program language, single platform system that incorporates FDIIS, CEaVa, COP, and AFM. | | 0.566 | - | - |
| Title: Technical Reviews and Technical Performance Analysis Description: Provides technology maturity assessments, prepare technical recommendations in support of Army Transformation and specific technologies of interest, including test and evaluate network systems, and infrastructure modeling and simulations to the G-8. FY 2024 Plans: Contractor will continue to provide technology maturity assessments, prepare technical recommendations in support of Army Transformation and specific technologies of interest, including test and evaluate network systems, and infrastructure modeling and simulations to the G-8. FY 2023 to FY 2024 Increase/Decrease Statement: FY2024 funding increase to provide technology maturity assessments and technical recommendations to support Army transformation. | | 0.686 | - | 0.243 |
| Title: Academic Research Description: Apply university academic and research resources to the integration of Army complex modeling, simulation, and training in support of modernized forces. | | 0.107 | - | 0.138 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203758A / <i>Digitization</i> | Project (Number/Name) 374 / <i>HOR Battlefield Digitizn</i> |
|--|---|---|

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| <p><i>FY 2024 Plans:</i> Contractor will continue to apply university academic and research resources to the integration of Army complex modeling, simulation, and training in support of modernized forces.</p> <p><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> FY2024 funding increase applies university academic research to integration of modeling, simulation and training in support of modernized forces.</p> | | | |
| Accomplishments/Planned Programs Subtotals | 3.759 | - | 1.515 |

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

N/A

Remarks

D. Acquisition Strategy

The AE2S development will be done through either a competitive Cost Plus or Fixed Price Incentive contracts that will deliver capabilities in increments, recognizing up front the need for future improvements. The objective of the strategy is to develop and optimize system capabilities while reducing risk and streamlining business and engineering processes.

FFRDC requirements will be accomplished by competitive contract.

Other efforts will be accomplished by various contract methods and types.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203758A / Digitization | Project (Number/Name) 374 / HOR Battlefield Digitizn |
|--|--|--|

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Army Equipping Enterprise SSystem (AE2S) Software | C/CPFF | TBD : TBD | 11.654 | 0.566 | | - | | - | | - | | - | Continuing | Continuing | Continuing |
| Subtotal | | | 11.654 | 0.566 | | - | | - | | - | | - | Continuing | Continuing | N/A |

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Interoperability and Integration | Various | Various : Various | 10.045 | 0.901 | | - | | 0.315 | | - | | 0.315 | 0.000 | 11.261 | - |
| Operational Capability Analysis and Evaluation | Various | VAR : VAR | 9.349 | 0.866 | | - | | 0.304 | | - | | 0.304 | 0.000 | 10.519 | - |
| Academic Research | Various | Various : Various | 3.511 | 0.107 | | - | | 0.138 | | - | | 0.138 | 0.000 | 3.756 | - |
| Systems Architecture Development | Various | VAR : VAR | 8.184 | 0.633 | | - | | 0.515 | | - | | 0.515 | 0.000 | 9.332 | - |
| Technical Reviews and Technical Performance Analysis | Various | VAR : VAR | 8.007 | 0.686 | | - | | 0.243 | | - | | 0.243 | 0.000 | 8.936 | - |
| Subtotal | | | 39.096 | 3.193 | | - | | 1.515 | | - | | 1.515 | 0.000 | 43.804 | N/A |

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | 50.750 | 3.759 | - | 1.515 | - | 1.515 | Continuing | Continuing | N/A |

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203758A / Digitization | Project (Number/Name) 374 / HOR Battlefield Digitizn |
|--|--|--|

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Interoperability and Integration | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operational Capability Analysis and Evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Technical Reviews and Technical Performance Analysis | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Academic Research | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note
None.

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203758A / Digitization | Project (Number/Name) 374 / HOR Battlefield Digitizn |
|--|--|--|

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Interoperability and Integration | 1 | 2016 | 4 | 2023 |
| Operational Capability Analysis and Evaluation | 1 | 2016 | 4 | 2022 |
| Systems Architecture Development 1.0 | 2 | 2015 | 2 | 2016 |
| Systems Architecture Development 2.0 | 3 | 2016 | 3 | 2017 |
| Systems Architecture Development 3.0 | 4 | 2017 | 4 | 2018 |
| Systems Architecture Development 4.0 | 1 | 2019 | 1 | 2020 |
| Systems Architecture Development 5.0 | 2 | 2020 | 4 | 2021 |
| Army Equipping Enterprise System (AE2S) Software SW 1.0 | 2 | 2015 | 2 | 2016 |
| Army Equipping Enterprise System (AE2S) Software SW 2.0 | 3 | 2016 | 3 | 2017 |
| Army Equipping Enterprise System (AE2S) Software SW 3.0 | 4 | 2017 | 4 | 2018 |
| Army Equipping Enterprise System (AE2S) Software SW 4.0 | 1 | 2019 | 1 | 2020 |
| Army Equipping Enterprise System (AE2S) Software SW 5.0 | 2 | 2020 | 4 | 2021 |
| Technical Reviews and Technical Performance Analysis | 1 | 2015 | 4 | 2022 |
| Academic Research | 3 | 2015 | 4 | 2022 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|--|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i> |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 0.122 | 3.109 | 4.520 | - | 4.520 | 1.508 | 1.510 | - | - | 0.000 | 10.769 |
| 038: <i>Avenger PIP</i> | - | 0.122 | 3.109 | 4.520 | - | 4.520 | 1.508 | 1.510 | - | - | 0.000 | 10.769 |

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Modernization Priorities in support of the Stinger missile program.

Avenger is a lightweight, ground-to-air missile and gun weapon system mounted on a High Mobility Multi-purpose Wheeled Vehicle (HMMWV). The system protects against unmanned aircraft systems, cruise missiles, and fixed and rotary wing threats. Avenger provides day/night adverse weather operations, shoot on the move capability, rapid target engagement, and remote firing capability. It can be air dropped, lifted by helicopter and is air transportable. The system employs up to eight Stinger missiles to counter aerial threats and a .50 Caliber Machine Gun (M3P) for close-in ground and air threats. An Identification Friend or Foe (IFF) system aids in the identification of friendly aircraft in order to minimize the potential for fratricide. The Avenger fleet of 453 systems includes 169 systems that are equipped with a digital Slew-to-Cue (STC) capability to speed target detection and engagement.

The Avenger Modification - Service Life Extension Program (MOD-SLEP) consists of Project 038: Avenger Production Improvement Program (PIP) and Program Element CE8710: Avenger MODS. The ongoing MOD-SLEP addresses obsolescence of Avenger components to ensure Avenger maintains operational capability through FY 2031. Key MOD-SLEP components are: the Targeting Console (TC), the M3P, the Avenger Fire Control Computer (AFCC), the Mode 5 IFF, the Vehicle Internal Communications (VIC-5), and the Assured Positioning Navigation and Timing (A-PNT) capability. The AFCC and TC are fielded to the STC Avengers. All other components are fielded to the entire Avenger fleet.

FY 2024 funding of \$4.520 million provides for multiple projects. First, \$3.071 million continues development, integration, prototyping and testing of technologies that will provide A-PNT capability, including the Anti-Jam Antenna and DAGR Distributed Device (D3), which will provide M-Code capability. Secondly, \$1.449 million continues obsolescence mitigation (Avenger Product Improvement).

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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| | |
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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i> |
|---|--|

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 0.127 | 3.109 | 0.000 | - | 0.000 |
| Current President's Budget | 0.122 | 3.109 | 4.520 | - | 4.520 |
| Total Adjustments | -0.005 | 0.000 | 4.520 | - | 4.520 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.005 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 4.520 | - | 4.520 |

Change Summary Explanation

FY 2024 increase reflects Army's continued investment in the Avenger A-PNT and obsolescence mitigation efforts.

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i> | | | | Project (Number/Name) 038 / <i>Avenger PIP</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| 038: <i>Avenger PIP</i> | - | 0.122 | 3.109 | 4.520 | - | 4.520 | 1.508 | 1.510 | - | - | 0.000 | 10.769 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Avenger is a lightweight, ground-to-air missile and gun weapon system mounted on a High Mobility Multi-purpose Wheeled Vehicle. The system protects against unmanned aircraft systems, cruise missiles, and fixed and rotary wing threats. Avenger provides day/night adverse weather operations, shoot on the move capability, rapid target engagement, and remote firing capability. It can be air dropped, lifted by helicopter and is air transportable. The system employs up to eight Stinger missiles to counter aerial threats and a .50 Caliber Machine Gun (M3P) for close-in ground and air threats. An Identification Friend or Foe (IFF) system aids in the identification of friendly aircraft in order to minimize the potential for fratricide. The Avenger fleet of 453 systems includes 169 systems that are equipped with a digital Slew-to-Cue (STC) capability to speed target detection and engagement.

The Avenger Modification - Service Life Extension Program (MOD-SLEP) consists of Project 038: Avenger Production Improvement Program (PIP) and Program Element CE8710: Avenger MODS. The ongoing MOD-SLEP addresses obsolescence of Avenger components to ensure Avenger maintains operational capability through Fiscal Year (FY) 2031. Key MOD-SLEP components are: the Targeting Console (TC), the M3P, the Avenger Fire Control Computer (AFCC), the Mode 5 IFF, the Vehicle Internal Communications (VIC-5), and the Assured Positioning Navigation and Timing (A-PNT) capability. The AFCC and TC are fielded to the STC Avengers. All other components are fielded to the entire Avenger fleet.

FY 2024 funding of \$4.520 million provides for multiple projects. First, \$3.071 million continues development, integration, prototyping and testing of technologies that will provide A-PNT capability, including the Anti-Jam Antenna and DAGR Distributed Device (D3), which will provide M-Code capability. Secondly, \$1.449 million continues obsolescence mitigation (Avenger Product Improvement).

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Avenger MOD-SLEP | 0.122 | - | 1.449 |
| Description: The Avenger MOD-SLEP consists of development activities for platform integration, software upgrades, and capability enhancements. Develops and executes test requirements and conducts limited contractor and government testing. Performs technical assessments, concept studies, cost reduction, risk reduction and development documentation. | | | |
| FY 2024 Plans: The Avenger MOD-SLEP consists of development activities for platform integration, software upgrades, and capability enhancements. Develops and executes test requirements and conducts limited contractor and government testing. Performs technical assessments, concept studies, cost reduction, risk reduction and development documentation. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: | | | |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i> | Project (Number/Name) 038 / <i>Avenger PIP</i> |
|--|--|--|

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| The FY 2023 to FY 2024 increase supports the MOD-SLEP obsolescence mitigation effort. | | | |
| <p>Title: A-PNT</p> <p>Description: This effort consists of development, integration, prototyping and testing of technologies that will provide Assured Positioning, Navigation and Timing (A-PNT) capability. The A-PNT capability, including the Anti-Jam Antenna and DAGR Distributed Device (D3), will provide M-Code capability to the Avenger system.</p> <p>FY 2023 Plans: Funding continues integration, prototyping and testing of the A-PNT capability, including the Anti-Jam Antenna and DAGR D3, which will provide M-Code capability.</p> <p>FY 2024 Plans: Funding continues integration, prototyping and testing of the A-PNT capability, including the Anti-Jam Antenna and DAGR D3, which will provide M-Code capability.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY 2023 to FY 2024 is due to the decrease of the work to be performed on this effort.</p> | - | 2.996 | 3.071 |
| <p>Title: SBIR/STTR</p> <p>Description: Funding transferred in accordance with Title 15 USC §638.</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638.</p> | - | 0.113 | - |
| Accomplishments/Planned Programs Subtotals | 0.122 | 3.109 | 4.520 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
| • CE8710: AVENGER MODS | 11.227 | - | 22.274 | - | 22.274 | 2.317 | - | - | - | 0.000 | 35.818 |

Remarks
CE8710 Avenger MODS procures the MOD-SLEP components for the Avenger system. This ensures that Avenger is viable and sustainable through FY 2031. This program is an integral part of the Army Air and Missile Defense Modernization strategy.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i> | Project (Number/Name) 038 / <i>Avenger PIP</i> |

D. Acquisition Strategy

The Avenger MOD-SLEP addresses obsolescence of key components and ensures that Avenger is viable and sustainable through FY 2031.

The MOD-SLEP components are the TC, the AFCC, the Mode 5 IFF, the VIC-5, the M3P machine gun and A-PNT. The M3P machine gun will be fielded through attrition. The other MOD-SLEP components will be installed in the field.

Development and testing of hardware and software modifications necessary to fully integrate the A-PNT capability into the Avenger will be performed by a combination of Government and Original Equipment Manufacturer efforts, using the existing and new Engineering Service contracts. Modifications will be completed with organic efforts with A-PNT hardware provided by Program Manager PNT.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i> | Project (Number/Name) 038 / <i>Avenger PIP</i> |
|--|--|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| SBIR/STTR | Allot | Various : Various | - | - | | 0.113 | | - | | - | | - | 0.000 | 0.113 | - |
| Subtotal | | | - | - | | 0.113 | | - | | - | | - | 0.000 | 0.113 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Avenger Modification Product Development | SS/ Various | Raytheon, The Boeing Company and others : Aberdeen Proving Grounds, MD and Huntsville, AL | 10.245 | 0.122 | Oct 2021 | 2.696 | Oct 2022 | 3.540 | Oct 2023 | - | | 3.540 | 0.000 | 16.603 | - |
| Subtotal | | | 10.245 | 0.122 | | 2.696 | | 3.540 | | - | | 3.540 | 0.000 | 16.603 | N/A |

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Avenger Modification Test Support | Various | The Boeing Company, U.S. Army Combat Capabilities Development Command Aviation and Missiles Center and others : Huntsville, AL and Redstone Arsenal, AL | 8.018 | - | | 0.300 | Oct 2022 | 0.980 | Oct 2023 | - | | 0.980 | 0.000 | 9.298 | - |
| Subtotal | | | 8.018 | - | | 0.300 | | 0.980 | | - | | 0.980 | 0.000 | 9.298 | N/A |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i> | | Project (Number/Name) 038 / <i>Avenger PIP</i> | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|--------------------------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Materiel Release (MOD-SLEP) | | | | | 1 Materiel Release | | | | | | | | | | | | | | | | | | | | | | | |
| A-PNT Integration | | | | | A-PNT Integration | | | | | | | | | | | | | | | | | | | | | | | |
| Continuing Avenger Product Improvement / Evolving Threats | | | | | Continuing Product Improvement | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203801A / <i>Missile/Air Defense Product Improvement Program</i> | Project (Number/Name) 038 / <i>Avenger PIP</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Integration and Testing (MOD-SLEP Phase II) | 2 | 2018 | 2 | 2020 |
| Live Fire Testing (MOD-SLEP Phase II) | 4 | 2018 | 4 | 2018 |
| Logistics Demo (MOD-SLEP Phase II) | 2 | 2019 | 4 | 2019 |
| Materiel Release (MOD-SLEP) | 4 | 2023 | 4 | 2023 |
| A-PNT Integration | 1 | 2023 | 4 | 2024 |
| Continuing Avenger Product Improvement / Evolving Threats | 1 | 2020 | 4 | 2026 |

Note
 MOD-SLEP components are the TC, AFCC, IFF, VIC-5, M3P machine gun and A-PNT.
 TC: Targeting Console
 AFCC: Avenger Fire Control Computer
 IFF: Identification Friend or Foe
 MOD-SLEP: Modification - Service Life Extension Program
 VIC: Vehicle Internal Communications
 A-PNT: Assured Positioning, Navigation and Timing

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0203802A / <i>Other Missile Product Improvement Programs</i> |
|---|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | 0.000 | 9.956 | 9.027 | 10.044 | 0.000 | 10.044 | 9.030 | 0.000 | 0.000 | 0.000 | 0.000 | 38.057 |
| VT9: <i>Lethal Miniature Aerial Missile System (LMAMS)</i> | - | 1.800 | - | - | - | - | - | - | - | - | 0.000 | 1.800 |
| VV2: <i>TOW</i> | - | 8.156 | 9.027 | 10.044 | - | 10.044 | 9.030 | - | - | - | 0.000 | 36.257 |

Program MDAP/MAIS Code: PRE

A. Mission Description and Budget Item Justification

VT9: LMAMS is a single man-portable/operable, light-weight organic, beyond line-of-sight, precision guided, loitering aerial missile system capable of locating and engaging obscured and/or fleeing enemy targets that otherwise cannot be engaged by typical direct fire weapon systems.

LMAMS has no FY 2024 funding.

VV2: TOW Weapon System includes the Improved Target Acquisition System (ITAS) and other TOW missile launchers, TOW missiles (BGM-71 series) and other missiles capable of being fired from TOW Missile launchers, and associated tactical training aids/devices. The TOW Weapon System provides long-range, lethal anti-armor and precision assault fires capability for Army Infantry Brigade Combat Teams (IBCT), Stryker Brigade Combat Teams (SBCT) and Armor Brigade Combat Teams (ABCT) within the Active, Reserve, and National Guard components. The United States Marine Corps (USMC) employs the TOW missile from its ITAS derived M41A7 Saber launchers and Anti-Tank Guided Missile (ATGM) vehicles.

The TOW Weapon System improvement program integrates U.S. Army missile and launcher modifications to improve missile safety and reliability, increase system survivability and lethality, and enhance system network capabilities. These capability improvements support Multi-Domain Operations (MDO) as a part of Joint All Domain Operations (JADO) and the Functional Concept for Movement and Maneuver by providing precise lethal capabilities in multiple domains against armored threat systems.

FY 2024 funding in the amount of \$10.044M is for TOW missile obsolescence mitigation, system improvements, integration management, and countermeasure/threat management.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
|---|-------------------------|

| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0203802A / <i>Other Missile Product Improvement Programs</i> |
|---|---|

| B. Program Change Summary (\$ in Millions) | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> |
|---|-----------------------|-----------------------|----------------------------|---------------------------|-----------------------------|
| Previous President's Budget | 10.265 | 9.027 | 0.000 | - | 0.000 |
| Current President's Budget | 9.956 | 9.027 | 10.044 | - | 10.044 |
| Total Adjustments | -0.309 | 0.000 | 10.044 | - | 10.044 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.309 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 10.044 | - | 10.044 |

Change Summary Explanation

FY 2024 increase reflects Army investment in TOW missile obsolescence mitigation, system improvements, integration management, and countermeasure/threat management.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Improvement Programs | Project (Number/Name) VT9 / Lethal Miniature Aerial Missile System (LMAMS) |
|--|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| VT9: Lethal Miniature Aerial Missile System (LMAMS) | - | 1.800 | - | - | - | - | - | - | - | - | 0.000 | 1.800 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

VT9: LMAMS is a single man-portable/operable, light-weight organic, beyond line-of-sight, precision guided, loitering aerial missile system capable of locating and engaging obscured and/or fleeing enemy targets that otherwise cannot be engaged by typical direct fire weapon systems.

LMAMS has no FY 2024 funding.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| Title: LMAMS Capability Improvements | 1.800 | - | - |
| Description: Joint Urgent Operational Need (JUON) User Required Capability Improvements supporting CC-0556. | | | |
| Accomplishments/Planned Programs Subtotals | 1.800 | - | - |

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

| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| • C88001: LETHAL MINIATURE AERIAL MISSILE SYSTEM (LMAMS) | 94.118 | 37.937 | 0.000 | - | 0.000 | - | - | - | - | 0.000 | 132.055 |

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Improvement Programs | Project (Number/Name) VT9 / Lethal Miniature Aerial Missile System (LMAMS) |
|--|--|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|----------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| System Engineering / Program Management | MIPR | CCDC AvMC : Redstone Arsenal, AL | 0.193 | 0.163 | May 2022 | - | | - | | - | | - | 0.000 | 0.356 | - |
| Subtotal | | | 0.193 | 0.163 | | - | | - | | - | | - | 0.000 | 0.356 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|----------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Product Development | MIPR | CCDC AvMC : Redstone Arsenal, AL | 2.061 | 0.986 | May 2022 | - | | - | | - | | - | 0.000 | 3.047 | - |
| Technology Integration | SS/CPFF | AeroVironment : Simi Valley, CA | - | 0.500 | May 2022 | - | | - | | - | | - | 0.000 | 0.500 | - |
| Subtotal | | | 2.061 | 1.486 | | - | | - | | - | | - | 0.000 | 3.547 | N/A |

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|-------------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| System Level Product Verification Testing | MIPR | Dugway Proving Grounds : Dugway, UT | - | 0.151 | May 2022 | - | | - | | - | | - | 0.000 | 0.151 | - |
| Subtotal | | | - | 0.151 | | - | | - | | - | | - | 0.000 | 0.151 | N/A |

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | | 2.254 | 1.800 | - | - | - | 0.000 | 4.054 | N/A |

Remarks

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Improvement Programs | | Project (Number/Name) VT9 / Lethal Miniature Aerial Missile System (LMAMS) | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|------------|---|---|---|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Product Development | ██████████ | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Component Level Product Verification Testing | ██████████ | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Technology Integration | | | | | ██████████ | | | | | | | | | | | | | | | | | | | | | | | |
| System Level Production Verification Testing | | | | | ██████████ | | | | | | | | | | | | | | | | | | | | | | | |
| Engineering Change Proposal Incorporation | | | | | ▲ | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203802A / <i>Other Missile Product Improvement Programs</i> | Project (Number/Name) VT9 / <i>Lethal Miniature Aerial Missile System (LMAMS)</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Product Development | 3 | 2021 | 3 | 2022 |
| Component Level Product Verification Testing | 1 | 2022 | 3 | 2022 |
| Technology Integration | 3 | 2022 | 1 | 2023 |
| System Level Production Verification Testing | 4 | 2022 | 2 | 2023 |
| Engineering Change Proposal Incorporation | 3 | 2023 | 3 | 2023 |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Improvement Programs | Project (Number/Name) VV2 / TOW |
|--|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| VV2: TOW | - | 8.156 | 9.027 | 10.044 | - | 10.044 | 9.030 | - | - | - | 0.000 | 36.257 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

VV2: TOW Weapon System includes the Improved Target Acquisition System (ITAS) and other TOW missile launchers, TOW missiles (BGM-71 series) and other missiles capable of being fired from TOW Missile launchers, and associated tactical training aids/devices. The TOW Weapon System provides long-range, lethal anti-armor and precision assault fires capability for Army Infantry Brigade Combat Teams (IBCT), Stryker Brigade Combat Teams (SBCT) and Armor Brigade Combat Teams (ABCT) within the Active, Reserve, and National Guard components. The United States Marine Corps (USMC) employs the TOW missile from its ITAS derived M41A7 Saber launchers and Anti-Tank Guided Missile (ATGM) vehicles.

The TOW Weapon System improvement program integrates U.S. Army missile and launcher modifications to improve missile safety and reliability, increase system survivability and lethality, and enhance system network capabilities. These capability improvements support Multi-Domain Operations (MDO) as a part of Joint All Domain Operations (JADO) and the Functional Concept for Movement and Maneuver by providing precise lethal capabilities in multiple domains against armored threat systems.

FY 2024 funding in the amount of \$10.044M is for TOW missile obsolescence mitigation, system improvements, integration management, and countermeasure/threat management.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| Title: TOW Missile Obsolescence Mitigation and System Improvements | 7.384 | 8.211 | 9.498 |
| Description: These funds will be used for development and qualification of new components, associated parts, and sub-systems such as the Radio Frequency Data-Link (RF DL), Missile Computer (MC), and Short Wave Infra-Red (SWIR) beacon. These components will be cut into production via Engineering Change Proposal upon qualification. | | | |
| FY 2023 Plans: Implement the design engineering of the RF DL, MC, and SWIR beacon, and required software to facilitate integration into a tactical system. Initiate the build and test of components at the component and sub-system level. FY 2023 engineering efforts culminate in the completion of Component Preliminary Design Review (PDR), and System PDR. | | | |
| FY 2024 Plans: | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Improvement Programs | Project (Number/Name) VV2 / TOW |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>Continue the design engineering of the RF DL, MC, and SWIR beacon, and required software to facilitate integration into a tactical system. Continue the build and test of components at the component and sub-system level. FY 2024 engineering efforts culminate in the completion of Design Engineering, Component Critical Design Review (CDR), and System CDR.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The increase in funds from FY 2023 to FY 2024 is due to a continuation in requirements to validate producibility of designed and tested components for TOW Missile obsolescence mitigation.</p> | | | |
| <p>Title: Integration and Counter Measure/Threat management</p> <p>Description: These funds will be used to prepare and perform technical assessments, threat analysis, concept studies, demonstrations, tests and risk mitigation efforts to address current and emerging threats.</p> <p>FY 2023 Plans: Perform technical assessments, analysis and testing of missiles against various targets to demonstrate current and future capabilities.</p> <p>FY 2024 Plans: Perform technical assessments, analysis and testing of missiles against various targets to demonstrate current and future capabilities.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: No significant increase from FY 2023 to FY 2024.</p> | 0.772 | 0.487 | 0.546 |
| <p>Title: SBIR/STTR Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC 638.</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC 638.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638.</p> | - | 0.329 | - |
| Accomplishments/Planned Programs Subtotals | 8.156 | 9.027 | 10.044 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
| • C59300: TOW 2 System Summary | 101.912 | 103.866 | 120.475 | - | 120.475 | 113.321 | 122.376 | 122.541 | 122.668 | 0.000 | 807.159 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | Date: March 2023 |
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| | | |
|--|---|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203802A / <i>Other Missile Product Improvement Programs</i> | Project (Number/Name) VV2 / TOW |
|--|---|---|

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|--------------------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| • C61700: <i>ITAS/TOW Mods</i> | 4.561 | 5.154 | 0.000 | - | 0.000 | - | - | - | - | 0.000 | 9.715 |

Remarks

D. Acquisition Strategy

TOW Missile obsolescence mitigation design engineering, component hardware build, and component systems integration will be conducted through Raytheon Missiles and Defense (RMD) as the current TOW Missile Prime contractor and only source that is both facilitized and qualified to produce all TOW Missile configurations.

The Acquisition Strategy uses in-house expertise, Other Government Agencies (OGA), defense industry capabilities, and when appropriate Other Transaction Authority (OTA). The strategy allows the Government the ability to support urgent operational needs and unanticipated requirements, which require immediate and expert attention. This strategy allows the Government to maintain TOW Weapon System effectiveness and posture for emerging requirements while leveraging new authorities and incorporating new technologies.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Impr ovement Programs | Project (Number/Name) VV2 / TOW |
|--|--|---|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Systems Engr/Program Management, Govt | MIPR | Multiple : Redstone Arsenal, AL | 1.359 | 0.902 | Jun 2022 | 0.792 | Mar 2023 | 0.824 | Mar 2024 | - | | 0.824 | 0.000 | 3.877 | - |
| SIBR/STTR Transfer | TBD | Various : Various | - | - | | 0.329 | | - | | - | | - | 0.000 | 0.329 | - |
| Subtotal | | | 1.359 | 0.902 | | 1.121 | | 0.824 | | - | | 0.824 | 0.000 | 4.206 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Component Design Engineering | SS/CPFF | Raytheon : Tucson, AZ | 11.609 | 1.933 | Jun 2022 | 2.291 | Mar 2023 | 2.698 | Mar 2024 | - | | 2.698 | 0.000 | 18.531 | - |
| Component Hardware Build | SS/CPFF | Raytheon : Tucson, AZ | - | 3.129 | Jun 2022 | 3.707 | Mar 2023 | 4.162 | Mar 2024 | - | | 4.162 | 0.000 | 10.998 | - |
| Integration and Counter Measure/Threat management | Various | Various : Various | - | 0.665 | May 2022 | 0.428 | Mar 2023 | 0.489 | Mar 2024 | - | | 0.489 | 0.000 | 1.582 | - |
| Subtotal | | | 11.609 | 5.727 | | 6.426 | | 7.349 | | - | | 7.349 | 0.000 | 31.111 | N/A |

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Component/System Test and Evaluation | SS/CPFF | Raytheon : Tucson, AZ | - | 1.527 | Jun 2022 | 1.480 | Mar 2023 | 1.871 | Mar 2024 | - | | 1.871 | 0.000 | 4.878 | - |
| Subtotal | | | - | 1.527 | | 1.480 | | 1.871 | | - | | 1.871 | 0.000 | 4.878 | N/A |

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract | |
|--|----------------------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|--------|
| | Project Cost Totals | | 12.968 | 8.156 | 9.027 | 10.044 | - | 10.044 | 0.000 | 40.195 |

Remarks

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203802A / Other Missile Product Improvement Programs | Project (Number/Name) VV2 / TOW | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|--|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|--|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Component Design Engineering | [Blue bar spanning FY 2022 Q1 to FY 2026 Q1] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Component Hardware Build | [Blue bar spanning FY 2022 Q2 to FY 2026 Q1] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Component Testing | [Blue bar spanning FY 2022 Q3 to FY 2026 Q1] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Component Preliminary Design Review | | | | | | | | | | | | | | | | | 1 ▲ | | | | | | | | | | | |
| System Preliminary Design Review | | | | | | | | | | | | | | | | | 2 ▲ | | | | | | | | | | | |
| Component Critical Design Review | | | | | | | | | | | | | | | | | 3 ▲ | | | | | | | | | | | |
| System Critical Design Review | | | | | | | | | | | | | | | | | 4 ▲ | | | | | | | | | | | |
| System Test and Integration | | | | | | | | | | | | | | | | | [Blue bar spanning FY 2025 Q2 to FY 2026 Q1] | | | | | | | | | | | |
| Integration and Counter Measure / Threat Management | [Blue bar spanning FY 2022 Q2 to FY 2026 Q1] | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0203802A / <i>Other Missile Product Improvement Programs</i> | Project (Number/Name) VV2 / TOW |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Component Design Engineering | 2 | 2021 | 1 | 2026 |
| Component Hardware Build | 2 | 2022 | 4 | 2025 |
| Component Testing | 3 | 2022 | 1 | 2026 |
| Component Preliminary Design Review | 3 | 2023 | 3 | 2023 |
| System Preliminary Design Review | 4 | 2023 | 4 | 2023 |
| Component Critical Design Review | 1 | 2024 | 1 | 2024 |
| System Critical Design Review | 3 | 2024 | 3 | 2024 |
| System Test and Integration | 2 | 2025 | 1 | 2026 |
| Integration and Counter Measure / Threat Management | 2 | 2022 | 4 | 2025 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | | | | | R-1 Program Element (Number/Name) PE 0205412A / Environmental Quality Technology - Operational System Dev | | | | | | | |
|--|-------------|---------|---------|--------------|---|---------------|---------|---------|---------|---------|------------------|------------|
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| Total Program Element | - | 0.253 | 0.793 | 0.281 | - | 0.281 | 0.284 | 0.287 | 0.625 | 0.504 | 0.000 | 3.027 |
| EE6: Environmental Information Tech Modernization | - | 0.253 | 0.793 | 0.281 | - | 0.281 | 0.284 | 0.287 | 0.625 | 0.504 | 0.000 | 3.027 |

A. Mission Description and Budget Item Justification

The Environmental Information Technology Management (EITM) program includes support for the Defense Environment, Safety & Occupational Health Network Information Exchange (DENIX) defense business system, as well as its database and reporting application, the Knowledge Based Corporate Reporting System (KBCRS). This request for research, development, test and evaluation (RDTE) is to implement necessary enhancements to facilitate DENIX's Platform-as-a-Service capabilities, with additional modernizations that will improve the DoD's ESOH system of record and reporting tool set. This also includes upgrades to incorporate ongoing cybersecurity, cloud computing, and other information technology requirements.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 0.262 | 0.793 | 0.291 | - | 0.291 |
| Current President's Budget | 0.253 | 0.793 | 0.281 | - | 0.281 |
| Total Adjustments | -0.009 | 0.000 | -0.010 | - | -0.010 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | -0.009 | - | | | |
| • Adjustments to Budget Years | - | - | -0.010 | - | -0.010 |

Change Summary Explanation

Decreased funding to support higher Army priorities.

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0205412A / <i>Environmental Quality Technology - Operational System Dev</i> | | | | Project (Number/Name) EE6 / <i>Environmental Information Tech Modernization</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| EE6: <i>Environmental Information Tech Modernization</i> | - | 0.253 | 0.793 | 0.281 | - | 0.281 | 0.284 | 0.287 | 0.625 | 0.504 | 0.000 | 3.027 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Environmental Information Technology Management (EITM) program includes support for the Defense Environment, Safety & Occupational Health Network and Information Exchange (DENIX) defense business system, as well as its database and reporting application, the Knowledge Based Corporate Reporting System (KBCRS). This request for research, development, test, and evaluation (RDTE) is to implement necessary enhancements to facilitate DENIX's Platform-as-a-Service (PaaS) capabilities, with additional modernizations that will improve the DoD's ESOH system of record and reporting tool set. This also includes upgrades to incorporate ongoing cybersecurity, cloud computing, and other information technology requirements.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: Environmental Information Technology Modernization | 0.253 | 0.764 | 0.281 |
| Description: Prototype, develop, and implement platform enhancements as required to meet data management requirements for the Defense Environment, Safety & Occupational Health Network and Information Exchange (DENIX) and its reporting application, the Knowledge Based Corporate Reporting System (KBCRS). | | | |
| FY 2023 Plans: The DENIX platform will continue to use machine learning algorithms to "learn" the business processes and rules used by OSD for the environmental data calls (Defense Environmental Programs Annual Report to Congress and the Environmental Management Review). "Learning" this information will pave the way for the prototyping of a tool that will allow KBCRS to predict anomalies and trends in data input, improving data quality. | | | |
| FY 2024 Plans: In FY24, the DENIX program will finalize the effort to use machine learning algorithms to "learn" the business processes and rules used by OSD for the environmental data calls (Defense Environmental Programs Annual Report to Congress and the Environmental Management Review). "Learning" this information will pave the way for the prototyping of a tool that will allow KBCRS to predict anomalies and trends in data input, improving data quality. In FY24 the DENIX contract will also be re-competed. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Funding for EITM was decreased to support higher Army priorities. | | | |
| Title: SBIR/STTR Transfer | - | 0.029 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | Date: March 2023 |
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| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205412A / <i>Environmental Quality Tech nology - Operational System Dev</i> | Project (Number/Name) EE6 / <i>Environmental Information Tech Modernization</i> |
|--|---|---|

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| Description: Funding transferred in accordance with Title 15 USC §638 | | | |
| FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638 | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638 | | | |
| Accomplishments/Planned Programs Subtotals | 0.253 | 0.793 | 0.281 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
| • OMA - 432612000: <i>Information Mgmt - Automation</i> | - | - | - | - | - | - | - | - | - | - | - |

Remarks
Information Mgmt - Automation 43261200 - This is the associated OMA line that provides daily support for the DoD Environment, Safety & Occupational Health Network Information Exchange and associated applications. EITM is managed as a Defense Business System #3180.

D. Acquisition Strategy
The Deputy Assistant Secretary of the Army for Environment, Safety & Occupational Health is the designated Executive Agent for the Environmental Information Technology Management (EITM) program. Defined by the DoD Directive 4715.1E, the EITM mission is to ensure efficient use of enterprise environment, safety, and occupational health (ESOH) corporate information management processes by providing and sustaining requirement-driven ESOH corporate data management, Congressional-reporting, and public outreach tools to the DoD, and other DoD stakeholders. Funding provided for this program will allow EITM to continue to develop and modernize the platform to meet Army and DoD policy-driven cloud computing and cybersecurity requirements. Prior to funding being committed, DoD ESOH stakeholders and authoritative information technology organizations were consulted to determine necessary system interface upgrades to be incorporated. Expanding DENIX's architecture to create a Level 2 container separate from the current Level 4 container will not only provide a more secure, cybersecurity risk-adverse environment, but it will also optimize performance, capabilities, and mandatory reporting for ESOH stakeholders using a PaaS delivery model. This phased solution begins in FY 2018 by prototyping of system architecture optimization that improves user experience, enabling web conferencing in FY 2019 and applying machine learning concepts to improve data quality in FY 2020-2022.

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205412A / Environmental Quality Technology - Operational System Dev | Project (Number/Name) EE6 / Environmental Information Technology Modernization | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|----------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Machine learning prototype | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205412A / <i>Environmental Quality Technology - Operational System Dev</i> | Project (Number/Name) EE6 / <i>Environmental Information Tech Modernization</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Split architecture prototype | 2 | 2019 | 2 | 2020 |
| User experience and containerization | 3 | 2019 | 3 | 2021 |
| Webinars/virtual conferencing prototype and development | 1 | 2020 | 4 | 2020 |
| Machine learning algorithms | 1 | 2020 | 4 | 2021 |
| Machine learning prototype | 4 | 2020 | 4 | 2022 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|--|--|
| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS) |
|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 58.516 | 20.180 | 75.952 | - | 75.952 | 45.549 | 45.603 | 40.730 | 41.185 | 0.000 | 327.715 |
| EG2: GMLRS Alternative Warheads | - | 23.209 | - | 25.264 | - | 25.264 | - | - | - | - | 0.000 | 48.473 |
| EG3: Guided MLRS | - | 35.307 | 20.180 | 50.688 | - | 50.688 | 45.549 | 45.603 | 40.730 | 41.185 | 0.000 | 279.242 |

Program MDAP/MAIS Code: 260

A. Mission Description and Budget Item Justification

Guided Multiple-Launch Rocket System (GMLRS) rockets are surface-to-surface artillery rockets fired from the Multiple Launch Rocket System (MLRS) and High Mobility Artillery Rocket System (HIMARS) launchers. GMLRS rockets provide 24/7, all-weather precision fires to engage both area and point targets at short, medium, and long ranges. The GMLRS Program currently consists of multiple variants: GMLRS Unitary utilizes a 200-pound high explosive warhead to engage point targets with limited collateral damage; GMLRS Dual Purpose Improved Conventional Munition (DPICM) cluster munition to engage area or imprecisely located targets and GMLRS Alternative Warhead (AW) which has been developed as a non-cluster munition to engage the same target set as GMLRS DPICM. GMLRS DPICM Production was terminated in response to the June 2008 Department of Defense (DoD) Cluster Munitions Policy. GMLRS Unitary and AW are currently in full rate production.

The 26 October 2016 Deputy Secretary's Management Action Group (DMAG) directed the Army to define and execute an effort for GMLRS modifications that would extend the maximum range (Extended Range (ER) GMLRS) and integrate sensors and seekers into the rocket to engage complex targets with greater precision at greater ranges. These modifications to GMLRS were designated by the Army Acquisition Executive as an engineering change proposal (ECP) and not as a new program. The Army prioritized the development and integration of an Enhanced Alternative Warhead (EAW) over support for the seeker spiral.

The GMLRS program is a component of an integrated fires development effort that includes survivability, resiliency, and effectiveness improvements against advanced threats from near-peer adversaries. These efforts include integration with an evolving common fires mission command, common development tools and processes, and annual test and evaluation to provide data to support program assessments and progress toward closure of performance gaps.

The GMLRS program will continue to leverage ongoing Government and Industry research and development efforts to extend range, increase survivability, and enhance lethality. The Project EG2: GMLRS Alternative Warheads funding line is used to support EAW system development (hardware, rocket and launcher software) as well as component and system level qualification, integration, and test into standard range GMLRS rocket. The Project EG3: Guided MLRS funding line supports GMLRS enhancements including development of system and component level requirements for a Sensor Fuzed Weapon (SFW), development of Assured Positioning, Navigation, and Timing (APNT), and long lead ER GMLRS components needed to support integration of EAW.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i> |
|---|---|

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 60.733 | 20.180 | 51.759 | - | 51.759 |
| Current President's Budget | 58.516 | 20.180 | 75.952 | - | 75.952 |
| Total Adjustments | -2.217 | 0.000 | 24.193 | - | 24.193 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -2.217 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 24.193 | - | 24.193 |

Change Summary Explanation

The increase in Fiscal Year (FY) 2024 funding will be used to initiate Sensor Fuzed Weapon demonstration.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS) | Project (Number/Name) EG2 / GMLRS Alternative Warheads |
|--|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| EG2: GMLRS Alternative Warheads | - | 23.209 | - | 25.264 | - | 25.264 | - | - | - | - | 0.000 | 48.473 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The U.S. Army initially funded the development of the Guided Multiple Launch Rocket System (GMLRS) Alternative Warhead (AW) increment under the Project EG2: GMLRS Alternative Warheads project code. GMLRS AW entered full rate production in 2015. The 26 October 2016 Deputy Secretary's Management Action Group (DMAG) directed the Army to define and execute an effort for a GMLRS modification that would integrate a seeker into the rocket. The Army prioritized integration of an Enhanced Alternative Warhead (EAW) into a standard range GMLRS rocket over continuation of the seeker spiral.

FY 2024 dollars in the amount of \$25.264 million will fund component development and qualification and continue software efforts for the EAW.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| Title: Enhanced Alternative Warhead | 23.209 | - | 25.264 |
| Description: The Enhanced Alternative Warhead effort modifies the AW warhead, proximity sensor, and warhead fuze for increased lethality against light and medium armored targets. | | | |
| FY 2024 Plans: Continue component development and qualification testing. Continue development and testing of updates to launcher fire control software and rocket operational flight software. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: This effort was funded under Project EG3: Guided MLRS in FY 2023. | | | |
| Accomplishments/Planned Programs Subtotals | | | |
| | 23.209 | - | 25.264 |

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

| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--------------------------------------|-----------|-----------|--------------|-------------|---------------|-----------|-----------|-----------|-----------|------------------|------------|
| • C64400: Guided MLRS Rocket (GMLRS) | 1,130.519 | 1,312.028 | 942.280 | - | 942.280 | 1,214.127 | 1,321.161 | 1,254.264 | 1,336.417 | Continuing | Continuing |
| • EG3: Guided MLRS | 35.307 | 20.180 | 50.688 | - | 50.688 | 45.549 | 45.603 | 40.730 | 41.185 | Continuing | Continuing |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i> | Project (Number/Name) EG2 / <i>GMLRS Alternative Warheads</i> |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|

Remarks

GMLRS missile Army procurement funding (MiPA) includes C65404 and C65406.

D. Acquisition Strategy

The GMLRS EAW lethality enhancement will service the existing GMLRS targets while adding capability against light/medium armored targets. The lead system integrator will enhance GMLRS M30A2 lethality by integrating a modified alternative warhead, new ESAF, and modified legacy proximity sensor. System Preliminary Design Review (PDR) is scheduled for 2nd Quarter FY 2023 and Critical Design Review (CDR) is scheduled for 1st Quarter FY 2025. System integrator will conduct component and system level qualification testing (arena, ground, flight) and production line validation. Components will be qualified to both GMLRS and ER GMLRS standards (most stringent). The end state is a qualified munition with a new nomenclature, ready for production cut-in as an ECP, to the existing GMLRS production line after qualification is completed in FY 2026. Contract cut-in is planned for the FY 2026 Production Lot contract award.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS) | Project (Number/Name) EG2 / GMLRS Alternative Warheads |
|--|--|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Government Program Management | Various | STORM Project Office : RSA | 9.464 | 3.018 | Jan 2022 | - | | 1.375 | Jan 2024 | - | | 1.375 | 0.000 | 13.857 | - |
| Subtotal | | | 9.464 | 3.018 | | - | | 1.375 | | - | | 1.375 | 0.000 | 13.857 | N/A |

Remarks
STORM-Strategic and Operational Rockets and Missiles; RSA-Redstone Arsenal

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Other Government Agencies | MIPR | CCDC/AvMC : RSA | 8.353 | 3.288 | Jan 2022 | - | | 10.198 | Jan 2024 | - | | 10.198 | 0.000 | 21.839 | - |
| Enhanced Alternative Warhead | C/CPFF | Kord : Huntsville, AL | 8.688 | 16.621 | Mar 2022 | - | | 6.310 | Jan 2024 | - | | 6.310 | 0.000 | 31.619 | - |
| AWP Contracts (Multiple) | TBD | LMMCF : Dallas, TX | 9.955 | 0.282 | | - | | 6.481 | Jan 2024 | - | | 6.481 | 0.000 | 16.718 | - |
| Subtotal | | | 26.996 | 20.191 | | - | | 22.989 | | - | | 22.989 | 0.000 | 70.176 | N/A |

Remarks
AWP-Alternative Warhead Program; Various-Competitive/Firm Fixed Price/Sole Source/Cost Plus Fixed Fee; CCDC-Combat Capabilities Development Command; AvMC-Aviation and Missile Center; RSA-Redstone Arsenal; NGDS-Northrop Grumman Defense Systems; MN-Minnesota; LMMFC-Lockheed Martin Missile and Fire Control; TX-Texas; AL-Alabama

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Test Support for EAW | MIPR | WSMR, RTC, AVMC : NM, Redstone Arsenal | 1.076 | - | | - | | 0.900 | Jan 2024 | - | | 0.900 | 0.000 | 1.976 | - |
| Subtotal | | | 1.076 | - | | - | | 0.900 | | - | | 0.900 | 0.000 | 1.976 | N/A |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS) | Project (Number/Name) EG2 / GMLRS Alternative Warheads |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|--|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Enhanced Alternative Warhead into Standard Range GMLRS | [Blue bar spanning all quarters from FY 2022 to FY 2026] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Component Level Design through CDRs | [Blue bar spanning all quarters from FY 2022 to Q3 FY 2024] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| System Level PDR | [Blue triangle '1' in Q2 FY 2023] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EDT Flight Testing | [Blue bar spanning all quarters from Q3 FY 2024 to Q4 FY 2024] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| System Level CDR | [Blue triangle '2' in Q3 FY 2025] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Component Qualification Testing | [Blue bar spanning all quarters from Q3 FY 2023 to Q4 FY 2025] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| System Qualification Flight Testing | [Blue bar spanning all quarters from Q3 FY 2026 to Q4 FY 2026] | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note
Enhanced Alternative Warhead development and qualification efforts into Standard Range GMLRS have been shared between Projects EG2 and EG3 funding lines. Continuation of this effort beyond FY 2024 is planned to be funded on under Project EG3.

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i> | Project (Number/Name) EG2 / <i>GMLRS Alternative Warheads</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Enhanced Alternative Warhead into Standard Range GMLRS | 2 | 2020 | 4 | 2026 |
| Component Level Design through CDRs | 2 | 2020 | 4 | 2024 |
| System Level PDR | 2 | 2023 | 2 | 2023 |
| EDT Flight Testing | 1 | 2024 | 3 | 2024 |
| System Level CDR | 1 | 2025 | 1 | 2025 |
| Component Qualification Testing | 3 | 2023 | 2 | 2025 |
| System Qualification Flight Testing | 2 | 2026 | 4 | 2026 |

Note

Enhanced Alternative Warhead development and qualification efforts into Standard Range GMLRS have been shared between EG2 and EG3 funding lines. Continuation of this effort beyond FY 2024 is planned to be funded under EG3.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS) | Project (Number/Name) EG3 / Guided MLRS |
|--|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| EG3: Guided MLRS | - | 35.307 | 20.180 | 50.688 | - | 50.688 | 45.549 | 45.603 | 40.730 | 41.185 | 0.000 | 279.242 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The U.S. Army continues to explore ways to enhance Guided Multiple Launch Rocket System (GMLRS) rockets and common components and to mitigate aging technology issues under Project EG3: Guided MLRS. The Army is requesting funding for the following GMLRS Research, Development, Test and Evaluation (RDT&E) activities: (1) demonstration of Sensor Fuzed Weapon (SFW) payload prototypes to provide enhanced operational capabilities; (2) investigation of potential cost reduction initiatives; (3) Preplanned Product Improvement (P3I); (4) evaluation and development of technologies to enhance overall product performance and survivability to include Assured Positioning, Navigation and Timing (APNT); and (5) system test and evaluation.

FY 2024 dollars in the amount of \$50.688 million will support:

*Next Generation Guidance Set development in support of APNT requirements

*The SFW effort to evaluate and select payloads for integration into GMLRS/ ER GMLRS in order to demonstrate a capability to defeat medium and heavy armored targets at significantly increased ranges

*Begin work on integration of Enhanced Alternative Warhead into an ER GMLRS.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| <p>Title: GMLRS enhancements</p> <p>Description: Develop and assess methods to improve rocket effectiveness. Continue to assess payload, motor, and guidance/control options to meet Objective Additional Performance Attributes (APAs).</p> <p>FY 2023 Plans: FY 2023 funds system level test activities of the Enhanced Alternative Warhead (EAW) into a standard range GMLRS rocket.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: SFW and ERG EAW efforts are captured separately. EAW efforts for Standard Range are funded under Project EG2: GMLRS Alternative Warheads in FY 2024.</p> | 7.711 | 12.575 | - |
| <p>Title: GMLRS Assured Position Navigation and Timing (APNT)</p> <p>Description: Address GMLRS munition-specific requirements related to maintaining accuracy in a contested environment, improving accuracy over longer ranges, and compliance with statutory GPS requirements.</p> <p>FY 2023 Plans:</p> | 12.256 | 1.070 | 3.077 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i> | Project (Number/Name) EG3 / <i>Guided MLRS</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| Evaluate and assess candidate APNT technologies to support future iterations of improved navigation, mitigation of dependence on GPS, and perform threat susceptibility. FY 2024 Plans: Initiate development of a next generation guidance set for the GMLRS system future production. Develop specifications, down-select Increment-2 M-Code receiver and antennas supporting anti-jam capability. Purchase receiver and antenna hardware to facilitate guidance set requirements development. FY 2023 to FY 2024 Increase/Decrease Statement: Funds in FY 2023 prioritized towards EAW and ER GMLRS development, qualification, and software efforts. | | | | |
| Title: Extended Range (ER) GMLRS and complementary rocket pod development Description: Complete rocket pod development and conduct system level ground and flight tests. FY 2023 Plans: System qualification flight testing for ER GMLRS FY 2023 to FY 2024 Increase/Decrease Statement: It is expected that ER GMLRS qualification and operational testing shall complete in FY 2023. | | 5.469 | 3.825 | - |
| Title: Extended Range (ER) GMLRS development Description: Qualification and integration of ER GMLRS. FY 2023 Plans: Continue launcher software integration associated with ERG. FY 2023 to FY 2024 Increase/Decrease Statement: It is expected that ER GMLRS qualification and operational testing shall complete in FY 2023. | | 9.871 | 1.973 | - |
| Title: Sensor Fuzed Weapon (SFW) Payload Description: The Sensor Fuzed Weapon (SFW) will provide capability to engage against armored and mechanized forces utilizing the ER GMLRS as the delivery vehicle. The Army will conduct a study determining the appropriate SFW to utilize against these targets and to develop and field this capability no later than FY 2030. The SFW will consist of a munition dispenser containing multiple submunitions. These submunitions will independently acquire, identify, and engage these targets. | | - | - | 30.158 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i> | Project (Number/Name) EG3 / <i>Guided MLRS</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>In order to support an accelerated demonstration schedule, initial efforts will be focused on demonstration of SFW on a standard range GMLRS. Characterization and testing of SFW in ERG environments will be incorporated to support subsequent demonstration of SFW on ER GMRLS.</p> <p>FY 2024 Plans: Award an Other Transactional Authority contract to support an initial system requirement review with the payload vendor and to develop the design leading up to Interim Design Review #1. This effort will also start procurement of GMLRS rockets, SFW payload munitions, and hardware for dispensing mechanisms needed to support integration and testing efforts starting in FY 2025. Additionally, FY 2024 also funds efforts to assess SFW qualification requirements to address safety and prepare for ground component level testing.</p> <p>Utilize Aviation and Missile Center to support system analysis and trade studies, software prototyping (rocket operational flight and launcher), and requirements development for payload and dispensing mechanism to support the payload vendor's effort to integrate the SFW payload into a GMLRS form-factor.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 is the first year for Sensor Fuzed Weapon.</p> | | | | |
| <p>Title: EAW Integration into ER GMLRS</p> <p>Description: Integration of the Enhanced Alternative Warhead into the ER GMLRS will provide medium to light armor capability against targets at extended ranges.</p> <p>FY 2024 Plans: Begin acquisition of long lead hardware items to support test schedule, mechanical and electrical integration of EAW into ER GMLRS, and development of software.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 is the initial year for integration of EAW into ER GMLRS.</p> | | - | - | 17.453 |
| <p>Title: SBIR/STTR Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC §638.</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> | | - | 0.737 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i> | Project (Number/Name) EG3 / <i>Guided MLRS</i> |

| | | | |
|---|----------------|----------------|----------------|
| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
| Funding transferred in accordance with Title 15 USC §638. | | | |
| Accomplishments/Planned Programs Subtotals | 35.307 | 20.180 | 50.688 |

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

| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| • C64400: <i>Guided MLRS Rocket (GMLRS)</i> | 1,130.519 | 1,312.028 | 942.280 | - | 942.280 | 1,214.127 | 1,321.161 | 1,254.264 | 1,336.417 | Continuing | Continuing |
| • EG2: <i>GMLRS Alternative Warheads</i> | 23.209 | - | 25.264 | - | 25.264 | - | - | - | - | 0.000 | 48.473 |

Remarks

GMLRS Procurement funding includes C65404 and C65406.

D. Acquisition Strategy

Project EG3: Guided MLRS supports the development of materiel changes that improve the GMLRS family of munitions and address emerging requirements.

Supported efforts include:

- * APNT activities to improve overall system performance in contested environments
- * ER GMLRS is performed as an Engineering Change Proposal (ECP). This is being executed under a Firm Fixed Price contract which completes efforts through Critical Design Review (CDR), System Qualification Tests (SQT) and Operational Testing (OT).
- * Leveraging the Enhanced Alternative Warhead capability by integrating it with the ER GMLRS rocket for improved effects at greater ranges.
- * The Sensor Fuzed Weapon effort shall be performed under an Other Transactional Authority to be awarded in FY 2024 to determine the feasibility and effectiveness of utilizing GMLRS rockets to dispense anti-armor submunitions for engaging medium and heavy armor targets.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|--|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS) | Project (Number/Name) EG3 / Guided MLRS |
|--|--|---|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Government Program Management | Various | Various : RSA | 19.048 | 1.454 | Jan 2022 | 1.932 | Jan 2023 | 2.758 | Jan 2024 | - | | 2.758 | Continuing | Continuing | Continuing |
| SBIR/STTR Transfer | Various | Various : Various | - | - | | 0.737 | | - | | - | | - | 0.000 | 0.737 | - |
| Subtotal | | | 19.048 | 1.454 | | 2.669 | | 2.758 | | - | | 2.758 | Continuing | Continuing | N/A |

Remarks
MIPR-Military Interdepartmental Purchase Request; RSA-Redstone Arsenal, Alabama; TBD-To Be Determined
Note that in FY 2023, Project EG3: Guided MLRS funds all Government Program Management activities. In prior years, this was a shared cost between Projects EG2 and EG3. Total cost for this activity in FY 2023 decreases as compared to FY 2022.

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|--|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Unitary Contracts/Multiple | SS/FPIF | LMMFC : Dallas, TX | 66.350 | 1.037 | Jan 2022 | 0.996 | Jan 2022 | - | | - | | - | Continuing | Continuing | Continuing |
| GMLRS Extended Range | SS/FFP | LMMFC : Dallas, TX | 194.957 | 0.941 | | - | | - | | - | | - | Continuing | Continuing | Continuing |
| APNT Development | C/CPFF | Kord : Huntsville, AL | 13.980 | 7.551 | Jan 2022 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| Enhanced Alternative Warhead | C/FPIF | Kord : Huntsville, AL | 24.964 | - | | - | | - | | - | | - | Continuing | Continuing | Continuing |
| Other Government Agencies | MIPR | Various : Various | 20.185 | 17.548 | Dec 2021 | 8.552 | Dec 2022 | 10.500 | Jan 2024 | - | | 10.500 | 0.000 | 56.785 | Continuing |
| Sensor Fuzed Weapon Competitive Contracts | C/TBD | TBD : TBD | - | - | | - | | 19.667 | Jan 2024 | - | | 19.667 | 0.000 | 19.667 | Continuing |
| Next Generation M-Code Receiver | C/CPFF | TBD : TBD | - | - | | - | | 2.910 | Apr 2024 | - | | 2.910 | 0.000 | 2.910 | Continuing |
| EAW Integration into ER GMLRS | SS/CPFF | Lockheed Martin : Camden, AR and Grand Prairie, TX | - | - | | - | | 14.853 | Apr 2024 | - | | 14.853 | 0.000 | 14.853 | Continuing |
| Subtotal | | | 320.436 | 27.077 | | 9.548 | | 47.930 | | - | | 47.930 | Continuing | Continuing | N/A |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|--|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS) | Project (Number/Name) EG3 / Guided MLRS |
|--|--|---|

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--------------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |

Remarks
 SS/FPIF-Sole Source/Fixed-Price Incentive Firm; LMMFC - Lockheed Martin Missile and Fire Control; TX - Texas; C/CPFF- Competitive/Cost Plus Fixed Fee; C/FPIF - Competitive/Fixed-Price Incentive Firm; WV - West Virginia; VA - Virginia; TBD - To Be Determined.
 OGA costs in FY 2022 include \$6.19 million in support of ER GMLRS and \$4.2 million in support of APNT.
 OGA costs in FY 2023 include \$2.25 million in support of ER GMLRS.

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--------------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Test Support | MIPR | Various : Various | 45.628 | 5.244 | Jan 2022 | 3.445 | Jan 2023 | - | | - | | - | Continuing | Continuing | Continuing |
| Enhanced Alternative Warhead | MIPR | Various : Various | 0.075 | 1.532 | | 4.518 | | - | | - | | - | 0.000 | 6.125 | - |
| Subtotal | | | 45.703 | 6.776 | | 7.963 | | - | | - | | - | Continuing | Continuing | N/A |

Remarks
 Performing Activities include White Sands Missile Range (WSMR), Aviation and Missile Center (AvMC), Army Research Laboratory (ARL), and Redstone Test Center (RTC).

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | 385.187 | 35.307 | 20.180 | 50.688 | - | 50.688 | Continuing | Continuing | N/A |

Remarks

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS) | Project (Number/Name) EG3 / Guided MLRS |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | | | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|--|--|--|--|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | |
| Assured Position, Navigation, and Timing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| System Engineering | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Prototype Builds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Next Generation Guidance Set Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ER GMLRS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Extended Range GMLRS Development and Qualification | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ER GMLRS System Qualification (Ground) Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ER GMLRS System Qualification Flight Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Engineering Change Proposal (ECP) Cut-in Decision | | | | | | | | | | | | | ▲ 1 | | | | | | | | | | | | | | | | | | | |
| ER GMLRS Operational Testing | | | | | | | | | | | | | ■ | | | | | | | | | | | | | | | | | | | |
| ER GMLRS Functional Configuration Audit | | | | | | | | | | | | | ▲ 2 | | | | | | | | | | | | | | | | | | | |
| Sensor Fuzed Weapon | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SFW Contract Vehicle | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / Guided Multiple-Launch Rocket System (GMLRS) | Project (Number/Name) EG3 / Guided MLRS | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | | | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---|--|--|--|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | |
| SFW System Requirements Review | | | | | | | | | ▲ 3 | | | | | | | | | | | | | | | | | | | | | | | |
| SFW Interim Design Review #1 | | | | | | | | | | | | | ▲ 4 | | | | | | | | | | | | | | | | | | | |
| SFW Component Testing | | | | | | | | | | | | | | | | | ■ | | | | | | | | | | | | | | | |
| SFW Interim Design Review #2 | | | | | | | | | | | | | | | | | ▲ 5 | | | | | | | | | | | | | | | |
| SFW Demonstration | | | | | | | | | | | | | | | | | | | | | ■ | | | | | | | | | | | |
| EAW Integration into ER GMLRS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EAW Integration and Delta Qualification for ER GMLRS | | | | | | | | | | | | | | | | | ■ | | | | ■ | | | | ■ | | | | ■ | | | |
| Long Lead Hardware for Prototypes | | | | | | | | | | | | | | | | | ■ | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i> | Project (Number/Name) EG3 / <i>Guided MLRS</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Assured Position, Navigation, and Timing | 3 | 2021 | 4 | 2033 |
| System Engineering | 3 | 2021 | 2 | 2023 |
| Prototype Builds | 4 | 2022 | 2 | 2023 |
| Next Generation Guidance Set Development | 2 | 2024 | 4 | 2032 |
| ER GMLRS | 2 | 2018 | 1 | 2024 |
| Extended Range GMLRS Development and Qualification | 2 | 2018 | 4 | 2023 |
| Preliminary Design Review | 3 | 2019 | 3 | 2019 |
| ER GMLRS Design Verification Testing | 3 | 2020 | 2 | 2021 |
| ER GMLRS Engineering Development Testing | 1 | 2021 | 3 | 2021 |
| Delta Preliminary Design Review | 1 | 2021 | 1 | 2021 |
| ER GMLRS System Qualification (Ground) Testing | 3 | 2021 | 2 | 2023 |
| Critical Design Reviews | 3 | 2021 | 3 | 2021 |
| ER GMLRS System Qualification Flight Testing | 3 | 2022 | 4 | 2023 |
| Engineering Change Proposal (ECP) Cut-in Decision | 4 | 2023 | 4 | 2023 |
| ER GMLRS Operational Testing | 4 | 2023 | 4 | 2023 |
| ER GMLRS Functional Configuration Audit | 4 | 2023 | 4 | 2023 |
| Sensor Fuzed Weapon | 2 | 2024 | 4 | 2030 |
| SFW Contract Vehicle | 2 | 2024 | 2 | 2028 |
| SFW System Requirements Review | 2 | 2024 | 2 | 2024 |
| SFW Interim Design Review #1 | 1 | 2025 | 1 | 2025 |
| SFW Component Testing | 4 | 2025 | 4 | 2026 |
| SFW Interim Design Review #2 | 4 | 2025 | 4 | 2025 |

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0205778A / <i>Guided Multiple-Launch Rocket System (GMLRS)</i> | Project (Number/Name) EG3 / <i>Guided MLRS</i> |
|--|---|--|

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| SFW Demonstration | 1 | 2027 | 2 | 2027 |
| EAW Integration into ER GMLRS | 2 | 2024 | 4 | 2029 |
| EAW Integration and Delta Qualification for ER GMLRS | 2 | 2024 | 4 | 2029 |
| Long Lead Hardware for Prototypes | 2 | 2024 | 3 | 2025 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i> |
|---|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 11.379 | 8.813 | 0.203 | - | 0.203 | 0.209 | 0.213 | 0.218 | 0.220 | 0.000 | 21.255 |
| 635: <i>Joint Tact Grd Station-P3I</i> | - | 11.379 | 8.813 | 0.203 | - | 0.203 | 0.209 | 0.213 | 0.218 | 0.220 | 0.000 | 21.255 |

A. Mission Description and Budget Item Justification

The Joint Tactical Ground Station (JTAGS) is a post-production, Acquisition Category (ACAT) III program. JTAGS provides missile warning message data for the Air and Missile Defense (AMD) architecture and improves performance for Integrated Air and Missile Defense Fire Control Systems/Composite Army Air and Missile Defense Brigades. JTAGS is scheduled to transition to US Space Force in Fiscal Year 2024 (FY2024).

JTAGS disseminates near real time warning, alerting, and cueing information on ballistic missile launches and other tactical events of interest throughout the theater using existing communication networks, providing critical support to Combatant Commanders in their Areas of Responsibility (AOR). Four outside the continental United States (OCONUS) deployed JTAGS units, which are deployed in three theaters (United States Pacific Command (PACOM), United States Central Command (CENTCOM), United States European Command (EUCOM)), constitute DoD's only in-theater system providing space-based missile warning. The fifth CONUS system is used as an institutional trainer but is available as a deployable asset. JTAGS is designated as the in-theater element of the United States Strategic Command's Theater Event System (TES), supporting all Theater Missile Defense pillars, affording the shortest sensor-to-shooter connectivity. On 14 January 2016, the Army Acquisition Executive designated the JTAGS Pre-Planned Product Improvement (JTAGS P3I) program as a separate ACAT III modification program.

The JTAGS Program Element (PE) supports development and testing of the JTAGS Block II Preplanned Product Improvements (P3I) program based on the JTAGS Operational Requirements Document (ORD), additive Joint Requirements Oversight Council - Memorandum (JROC-M) requirements, and the formal JTAGS Block II Capability Development Document (CDD) thresholds. P3I upgraded JTAGS to a Block II configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and improved warning tactical parameters and timeliness. The JTAGS Block II P3I program based on the 2009 JTAGS ORD is on contract as a two-phase development effort. JTAGS Block II P3I Phase 1 is complete. The final developmental efforts of JTAGS Block II P3I Phase 2 to achieve 2009 ORD requirements completed in FY2022. Follow-on Test and Evaluation (FOTE) completed in FY2022 with Materiel Release efforts to be conducted in FY2023. The JTAGS Block II CDD addresses evolving User-driven needs such as emerging threats and interface efforts that were not known at the time the JTAGS ORD was validated.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i> |
|---|---|

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 13.379 | 8.813 | 15.074 | - | 15.074 |
| Current President's Budget | 11.379 | 8.813 | 0.203 | - | 0.203 |
| Total Adjustments | -2.000 | 0.000 | -14.871 | - | -14.871 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -2.000 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -14.871 | - | -14.871 |

Change Summary Explanation

The FY2024 reduction reflects the transition of the majority of JTAGS program and associated funding to the United States Space Force with the exception of one man year of effort at the Army Space and Missile Defense Command.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0208053A / Joint Tactical Ground System | Project (Number/Name) 635 / Joint Tact Grd Station-P3I |
|--|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| 635: Joint Tact Grd Station-P3I | - | 11.379 | 8.813 | 0.203 | - | 0.203 | 0.209 | 0.213 | 0.218 | 0.220 | 0.000 | 21.255 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Joint Tactical Ground Station (JTAGS) is a post-production, Acquisition Category (ACAT) III program. JTAGS provides missile warning message data for the Air and Missile Defense (AMD) architecture and improves performance for Integrated Air and Missile Defense Fire Control Systems/Composite Army Air and Missile Defense Brigades. JTAGS is scheduled to transition to US Space Force in Fiscal Year 2024 (FY2024).

JTAGS disseminates near real time warning, alerting, and cueing information on ballistic missile launches and other tactical events of interest throughout the theater using existing communication networks, providing critical support to Combatant Commanders in their Areas of Responsibility (AOR). Four OCONUS deployed JTAGS units, which are deployed in three theaters (United States Pacific Command (PACOM), United States Central Command (CENTCOM), United States European Command (EUCOM)), constitute DoD's only in-theater system providing space-based missile warning. The fifth CONUS system is used as an institutional trainer but is available as a deployable asset. JTAGS is designated as the in-theater element of the United States Strategic Command's Theater Event System (TES), supporting all Theater Missile Defense pillars, affording the shortest sensor-to-shooter connectivity. On 14 January 2016, the Army Acquisition Executive designated the JTAGS Pre-Planned Product Improvement (JTAGS P3I) program as a separate ACAT III modification program.

The JTAGS Program Element (PE) supports development and testing of the JTAGS Block II Preplanned Product Improvements (P3I) program based on the JTAGS Operational Requirements Document (ORD), additive Joint Requirements Oversight Council - Memorandum (JROC-M) requirements, and the formal JTAGS Block II Capability Development Document (CDD) thresholds. P3I upgraded JTAGS to a Block II configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, and improved warning tactical parameters and timeliness. The JTAGS Block II P3I program based on the 2009 JTAGS ORD is on contract as a two-phase development effort. JTAGS Block II P3I Phase 1 is complete. The final developmental efforts of JTAGS Block II P3I Phase 2 to achieve 2009 ORD requirements completed in FY2022. Follow-on Test and Evaluation (FOTE) completed in FY2022 with Materiel Release efforts to be conducted in FY2023.

The Joint Tactical Ground Station (JTAGS) transitions to US Space Force in FY2024.

The FY2024 funding in the amount of \$.203 million supports one man year of effort within the Space and Missile Defense Command (SMDC).

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| Title: JTAGS P3I Block II Phase 2 | 0.861 | - | - |
| Description: JTAGS Block II P3I Phase 2 activities seek to develop and test capabilities identified in the 2009 JTAGS Operational Requirements Document (ORD). Joint Requirements Oversight Council (JROC) Memos 197-12, 113-13, and 042-19 and PL | | | |

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|---|---|---|----------------|----------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i> | Project (Number/Name) 635 / <i>Joint Tact Grd Station-P3I</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| 111-383 (Ike Skelton National Defense Authorization Act for FY2011) support the requirement to develop and field JTAGS Block II capabilities as soon as possible. | | | | |
| <p>Title: Development and Test of Block II CDD requirements</p> <p>Description: JTAGS Block II program continues to focus on development/integration of evolving cyber hardening advances, defense against emerging threats, and JTAGS Capability Development Document (CDD) threshold requirements. JROC-Memos 197-12, 113-13, and 042-19 and PL 111-383 (Ike Skelton National Defense Authorization Act for FY2011) require fielding of these capabilities as soon as possible.</p> <p>FY 2023 Plans: Funding required continues to support the development efforts detailed in the JTAGS Block II CDD of A-PNT and M-Code GPS compliance and continues to address obsolescence mitigation and COTS hardware and software upgrades. The funding supports continued efforts to complete requirements in the Block II CDD.</p> <p>FY 2024 Plans: The \$.203 million supports one man year of effort at SMDC.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY2023 to FY2024 decreases as Joint Tactical Ground Station (JTAGS) transitions to US Space Force in FY2024.</p> | | 8.148 | 6.122 | 0.203 |
| <p>Title: JTAGS Test and Evaluation Support</p> <p>Description: Test and evaluation support for the JTAGS program.</p> <p>FY 2023 Plans: Funding provides for A-PNT Cooperative Vulnerability & Penetration Assessment (CVPA) and Technical Manual Delta Validation and Verification Certification and of the JTAGS Block II system.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY2023 to FY2024 decreases as Joint Tactical Ground Station (JTAGS) transitions to US Space Force in FY2024 and FY2023 is the last year of Army funding.</p> | | 2.370 | 2.691 | - |
| Accomplishments/Planned Programs Subtotals | | 11.379 | 8.813 | 0.203 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i> | Project (Number/Name) 635 / <i>Joint Tact Grd Station-P3I</i> |

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

| Line Item | FY 2022 | FY 2023 | FY 2024 | FY 2024 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To | Total Cost |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|------------|
| | | | Base | OCO | Total | | | | | Complete | |
| • BZ8420: <i>JOINT TACTICAL GROUND STATION MODS (JTAGS)</i> | 8.088 | 0.349 | 0.000 | - | 0.000 | - | - | - | - | 0.000 | 8.437 |

Remarks

D. Acquisition Strategy

This program element develops critical software intensive improvements, while continuing to make maximum use of Non-Developmental Items (NDI)/Commercial Off the Shelf (COTS) components and Government Furnished Equipment (GFE). After design and integration, the system will be subject to thorough developmental and validation/verification testing to verify performance, operational effectiveness and suitability. The JTAGS Block II Pre-planned Product Improvement (P3I) program was initiated based on a 2009 JTAGS Operational Requirements Document (ORD) and upgrades JTAGS to a Block II configuration for operation with the next generation of Space Based Infrared System (SBIRS) satellites, improving warning tactical parameters and timeliness. The JTAGS Block II P3I contract was a full and open competition, but only the incumbent JTAGS contractor submitted a proposal, resulting in a sole-source contract on 26 Aug 2012. The contract's development options are Cost Plus Incentive Fee; its production options are Firm Fixed Price, and its Sustainment options are Cost Plus Fixed Fee. The JTAGS Block II contract's period of performance was 1 October 2012 through 30 September 2021 with a contract extension to April 2022. As threats continue to evolve and change as well as new satellite sensors become available, the JTAGS Users in conjunction with the Army Capabilities Manager have developed a JTAGS Block II Capability Development Document (CDD), requiring JTAGS to address new/changing threats that were not addressed in the 2009 JTAGS ORD. The acquisition of the continued JTAGS Block II efforts based on the JTAGS Block II CDD will be performed under a sole source follow-on contract awarded May 2022 to the current JTAGS contractor.

The Joint Tactical Ground Station (JTAGS) transitions to US Space Force in FY2024 and FY2023 is the last year of Army funding.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0208053A / Joint Tactical Ground System | Project (Number/Name) 635 / Joint Tact Grd Station-P31 |
|--|--|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Government Program Management | Allot | Various (AMC, AMCOM, CCDC, SMDC ROC) : Redstone Arsenal, AL | 1.184 | 1.143 | Oct 2021 | 1.166 | Oct 2022 | 0.203 | Oct 2023 | - | | 0.203 | 0.000 | 3.696 | - |
| Subtotal | | | 1.184 | 1.143 | | 1.166 | | 0.203 | | - | | 0.203 | 0.000 | 3.696 | N/A |

Remarks
Provides Other Government Agency (OGA) support to the JTAGS acquisition program

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Development and Test Block II CDD requirements | SS/UCA | Northrop-Grumman : Colorado Springs, Co | - | 6.407 | May 2022 | 4.028 | Nov 2022 | - | | - | | - | 0.000 | 10.435 | - |
| System Engineering Support | C/CPFF | Intrepid : Huntsville, AL | 0.450 | 0.558 | Jan 2023 | 0.569 | Jan 2023 | - | | - | | - | 0.000 | 1.577 | - |
| Subtotal | | | 0.450 | 6.965 | | 4.597 | | - | | - | | - | 0.000 | 12.012 | N/A |

Remarks
Continues development of the JTAGS Block II capabilities based on the JTAGS Block II Capability Development Document (CDD)

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| System Engineering Technical Assistance | C/CPFF | Intrepid : Huntsville, AL | 0.750 | 0.739 | Jan 2023 | 0.754 | Jan 2023 | - | | - | | - | 0.000 | 2.243 | - |
| Subtotal | | | 0.750 | 0.739 | | 0.754 | | - | | - | | - | 0.000 | 2.243 | N/A |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0208053A / Joint Tactical Ground System | Project (Number/Name) 635 / Joint Tact Grd Station-P3I |
|--|--|--|

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |

Remarks
Provides technical assistance in implementing the JTAGS Block II CDD

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| JTAGS Test Support (ATEC/AIC/JITC) | Allot | Various (ATEC, AIC, JITC) : Various locations | 2.725 | 2.532 | Oct 2021 | 2.296 | Oct 2022 | - | | - | | - | 0.000 | 7.553 | - |
| Subtotal | | | 2.725 | 2.532 | | 2.296 | | - | | - | | - | 0.000 | 7.553 | N/A |

Remarks
Supports testing of JTAGS Block II development efforts based on the JTAGS Block II CDD.

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | 5.109 | 11.379 | 8.813 | 0.203 | - | 0.203 | 0.000 | 25.504 | N/A |

Remarks

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i> | Project (Number/Name) 635 / <i>Joint Tact Grd Station-P3I</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| JTAGS Follow-on Operational Test and Evaluation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| JTAGS Block II CDD driven emerging threats and cyber har... | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| JTAGS Block II Engineering Service Follow-On Contract | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Limited User Test of Block II CDD Emerging Threat Capabi... | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Continued Block II CDD Emerging Threats and Future Senso... | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0208053A / <i>Joint Tactical Ground System</i> | Project (Number/Name) 635 / <i>Joint Tact Grd Station-P3I</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| JTAGS Follow-on Operational Test and Evaluation | 2 | 2022 | 3 | 2022 |
| JTAGS Block II CDD driven emerging threats and cyber hardening | 1 | 2022 | 2 | 2023 |
| JTAGS Block II Engineering Service Follow-On Contract | 3 | 2022 | 3 | 2025 |
| Limited User Test of Block II CDD Emerging Threat Capabilities | 3 | 2023 | 3 | 2023 |
| Continued Block II CDD Emerging Threats and Future Sensor Integration | 4 | 2023 | 1 | 2025 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0303028A / <i>Security and Intelligence Activities</i> |
|---|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 24.506 | - | 0.301 | - | 0.301 | 0.302 | 0.302 | 0.302 | 0.303 | 0.000 | 26.016 |
| FG2: <i>Counterintelligence & Human Intel Modernization</i> | - | 0.667 | - | 0.301 | - | 0.301 | 0.302 | 0.302 | 0.302 | 0.303 | 0.000 | 2.177 |
| H13: <i>Information Dominance Center (IDC) - Tiara</i> | - | 23.839 | - | - | - | - | - | - | - | - | 0.000 | 23.839 |

A. Mission Description and Budget Item Justification

Funding supports the U.S. Army Intelligence and Security Command's (INSCOM) RDTE program, which provides the Army with low-density, high-demand, extremely advanced offensive cyberspace technologies designed to degrade, deny, disrupt, or destroy adversary Command, Control, Communications, Computers and Intelligence (C4I) and shape the operational warfighting environment in order to create conditions favorable to the application of other elements of national power.

INSCOM conducts RDTE of offensive Cyberspace technologies in direct support of the full range of missions called for in the National Defense Strategy, Comprehensive National Cyber-Security Initiative, National Security Strategy, National Defense Guidance, National Security Presidential Directive (NSPD)-38, NSPD-54 and Homeland Security Presidential Directive (HSPD)-23.

HQDA G-2 and the Intelligence and Security Command (INSCOM) Security Operations Center (ISOC) are charged with integrating, informing, and leveraging security and counterintelligence authorities in support of the Department of the Army Insider Threat Program mission to continuously deter, detect, and mitigate insider threats to Army information, networks, facilities, and personnel.

| B. Program Change Summary (\$ in Millions) | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 24.531 | 0.000 | 0.000 | - | 0.000 |
| Current President's Budget | 24.506 | 0.000 | 0.301 | - | 0.301 |
| Total Adjustments | -0.025 | 0.000 | 0.301 | - | 0.301 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -0.025 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 0.301 | - | 0.301 |

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|---|---|-------------------------|
| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0303028A / <i>Security and Intelligence Activities</i> | |
| <u>Change Summary Explanation</u> Increase in FY 2024 funding request supports sustaining Personnel Security Investigations | | |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303028A / Security and Intelligence Activities | Project (Number/Name) FG2 / Counterintelligence & Human Intel Modernization |
|--|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| FG2: Counterintelligence & Human Intel Modernization | - | 0.667 | - | 0.301 | - | 0.301 | 0.302 | 0.302 | 0.302 | 0.303 | 0.000 | 2.177 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | - | - |

A. Mission Description and Budget Item Justification

HQDA G-2 and the Intelligence and Security Command (INSCOM) Security Operations Center (ISOC) are charged with integrating, informing, and leveraging security and counterintelligence authorities in support of the Department of the Army Insider Threat Program mission to continuously deter, detect, and mitigate insider threats to Army information, networks, facilities, and personnel.

Funding supports personnel security-related capabilities for identifying, reporting and responding to potential personnel security information of concern. These tools are key enablers of the Army Insider Threat Program. These tools provide statistical models to assess risk, centralized analysis, reporting and response capabilities, and reporting mechanisms for relevant insider threat data.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| Title: Insider Threat CE Support | 0.667 | - | 0.301 |
| Description: HQDA G-2 and the Intelligence and Security Command (INSCOM) Security Operations Center (ISOC) are charged with integrating, informing, and leveraging security and counterintelligence authorities in support of the Department of the Army Insider Threat Program mission to continuously deter, detect, and mitigate insider threats to Army information, networks, facilities, and personnel. | | | |
| FY 2024 Plans: Continue personnel security-related capabilities for identifying, reporting and responding to potential personnel security information of concern. These tools are key enablers of the Army Insider Threat Program. These tools provide statistical models to assess risk, centralized analysis, reporting and response capabilities, and reporting mechanisms for relevant insider threat data. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Increase in FY24 result of FY23 being a skip year. | | | |
| Accomplishments/Planned Programs Subtotals | 0.667 | - | 0.301 |

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

N/A

Remarks

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303028A / <i>Security and Intelligence Activities</i> | Project (Number/Name) FG2 / <i>Counterintelligence & Human Intel Modernization</i> |

D. Acquisition Strategy
N/A

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303028A / Security and Intelligence Activities | Project (Number/Name) FG2 / Counterintelligence & Human Intel Modernization | |

| | FY 2015 | | | | FY 2016 | | | | FY 2017 | | | | FY 2018 | | | | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | |
|------------|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Classified | [REDACTED] | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Classified | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303028A / <i>Security and Intelligence Activities</i> | Project (Number/Name) FG2 / <i>Counterintelligence & Human Intel Modernization</i> |

Schedule Details

| Events | Start | | End | |
|------------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Classified | 1 | 2018 | 1 | 2019 |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303028A / Security and Intelligence Activities | Project (Number/Name) H13 / Information Dominance Center (IDC) - Tiara |
|--|--|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| H13: Information Dominance Center (IDC) - Tiara | - | 23.839 | - | - | - | - | - | - | - | - | 0.000 | 23.839 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

INSCOM's RDTE program provides the Army with low-density, high-demand, extremely advanced multi-domain intelligence collection and cyberspace technologies (SIGINT, EW, Cyberspace) designed to collect, process, exploit and, when directed, degrade, deny, disrupt, destroy, or manipulate adversary C4I and shape the operational warfighting environment in order to create conditions favorable to the application of other elements of national power.

INSCOM conducts RDTE of multi-domain intelligence collection and cyberspace technologies (SIGINT, EW, Cyberspace) in direct support of the full range of missions called for in the National Defense Strategy, Comprehensive National Cyber-Security Initiative, National Security Strategy, National Defense Guidance, NSPD-38, NSPD-54 and HSPD-23.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| Title: Offensive Cyberspace Operations Capability Development | 23.839 | - | - |
| Description: Title: Multi-Domain Intelligence Collection and Cyberspace Operations Capability Development Description: INSCOM's RDTE program provides the Army with low-density, high-demand, extremely advanced multi-domain intelligence collection and cyberspace technologies (SIGINT, EW, Cyberspace) designed to collect, process, exploit, and when directed, degrade, deny, disrupt, or destroy adversary C4I and shape the operational warfighting environment in order to create conditions favorable to the application of other elements of national power. | | | |
| Accomplishments/Planned Programs Subtotals | 23.839 | - | - |

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

N/A

Remarks

D. Acquisition Strategy

N/A

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| | | | |
|--|--|--|-------------------------|
| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303028A / Security and Intelligence Activities | Project (Number/Name) H13 / Information Dominance Center (IDC) - Tiara | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|------------|---|---|---|------------|---|---|---|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| IP-Based Cyber Operations Platforms | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | |
| Aerial/Ground-Based Cyber Operations Platforms | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | |
| Remote Access Capabilities | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | |
| Close Access Capabilities | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | |
| Platform C2 and Visualization Capabilities | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | |
| Testing and Evaluation Support of Cyberspace RDTE Capabilities | [Redacted] | | | | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303028A / <i>Security and Intelligence Activities</i> | Project (Number/Name) H13 / <i>Information Dominance Center (IDC) - Tiara</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| IP-Based Cyber Operations Platforms | 1 | 2022 | 1 | 2024 |
| Aerial/Ground-Based Cyber Operations Platforms | 1 | 2022 | 1 | 2024 |
| Remote Access Capabilities | 1 | 2022 | 1 | 2024 |
| Close Access Capabilities | 1 | 2022 | 1 | 2024 |
| Platform C2 and Visualization Capabilities | 1 | 2022 | 1 | 2024 |
| Testing and Evaluation Support of Cyberspace RDTE Capabilities | 1 | 2022 | 1 | 2024 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> |
|---|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 15.680 | 17.209 | 15.323 | - | 15.323 | 17.786 | 17.807 | 17.998 | 18.200 | Continuing | Continuing |
| 491: <i>Information Assurance Development</i> | - | 6.937 | 7.816 | 7.035 | - | 7.035 | 8.042 | 8.052 | 8.138 | 8.229 | Continuing | Continuing |
| DV4: <i>Key Management Infrastructure (KMI)</i> | - | 0.987 | 1.023 | - | - | - | 1.407 | 1.409 | 1.425 | 1.441 | Continuing | Continuing |
| DV5: <i>Crypto Modernization (Crypto Mod)</i> | - | 7.756 | 8.370 | 8.288 | - | 8.288 | 8.337 | 8.346 | 8.435 | 8.530 | Continuing | Continuing |

A. Mission Description and Budget Item Justification

A portion of this funding line is a key enabler of the Army Modernization Priorities in support of the Communications Security (COMSEC) Key Management Infrastructure (KMI) program.

Project 491: Army Chief Information Officer/Deputy Chief of Staff, G-6 manages Information Assurance Development.

Project 491: IA Development. Supports the implementation of the National Security Agency (NSA) developed Communications Security (COMSEC) Modernization and Key Management (KM) technologies within the Army. This includes current and next generation encryption techniques, current and future Key Management Infrastructure (KMI) and technology migrations. This program provides oversight in developing policies, guidance, standard operating procedures and recommendations in integrating COMSEC and KM techniques into specific systems in support of securing the Army Tactical and Enterprise Networks. This entails architecture studies, system integration and testing, developing installation kits, and technological collaborations with NSA, DISA and other Services for enterprise and last mile implementations. The program assesses, develops and integrates Cyber Security (CS)/COMSEC tools (hardware and software) which provide protection for fixed infrastructure post, camp and station networks as well as tactical networks. The cited work is consistent with Strategic Planning Guidance (SPG) and the Army Modernization and Strategy Plan (AMSP).

IA Development funding implements and establishes functional and technical boundaries of cryptographic, key management and IA capabilities in coordination with the NSA, the DISA, and Joint Services, to secure National Security Systems (NSS), and National Security Information (NSI). Technical evaluations assess the security, operational effectiveness and network interoperability of advanced concept technologies to develop policies, standards, and fundamental building blocks for Army COMSEC capabilities that reduce the risk of future material solutions that could underperform and disrupt classified operations. Develop and publish the COMSEC Implementation Planning Guidance to identify, standardize, and govern the insertion of CS capabilities to bridge operational gaps and support the DoD and NSA mandated requirements to enhance network capacity while providing for secure information exchange of voice, video, and data in accordance with the Army Network Campaign Plan. This will be accomplished by interoperability evaluation, standards testing, and CS, System of System Network Vulnerability Assessments (SoS NVA) for Army Capability Sets for CS/COMSEC capabilities that provide protections for tactical and fixed infrastructure post, camp, and station networks.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> | |
| <p>The program enables the continuation of oversight for the executions of the Army's COMSEC Modernization initiatives including major Advanced Cryptographic Capabilities (ACC) updates and replacements of existing devices and systems to meet NSA mandates. Continue to support the evaluation and testing of new technologies to support DoD Cryptographic Moderation 2 (CM2) Army implementations including Transmission Security (TRANSEC), EKMS to KMI migration and tactical network/architecture future Capability Set developments. Provide proof of concepts to provide updated end-to-end, tactical-to-strategic COMSEC standardization and implementation guidance to meet Army's operational requirements. Continuous funding will enable the evaluations and maturity assessment of new COMSEC and key management capabilities developed by DoD joint KMI program for Army fielding to protect and strengthen the Army Network posture, with reduced cryptographic interoperability issues for both embedded and standalone systems. This funding also supports the risk reduction testing to document operational value of commercial products prior to insertion for Army use. Provide timely test and evaluate results to enable the Army to make sound investment strategic decisions and to reduce or eliminate duplications. Also supports efforts to update and develop policies to posture Army's operations to implement innovative cryptographic and key management tools and services.</p> <p>The Defensive Cyberspace Operations (DCO) program provides initial capabilities that enable passive and active cyberspace defense operations to preserve friendly cyberspace capabilities and protect data, networks, net-centric capabilities, and other designated systems. Big Data Pilot provides an advanced analytics capability capable of ingesting structured, semi-structured, and unstructured data from multiple data sources (e.g., Joint Regional Security Stacks (JRSS), intrusion detection systems, intrusion prevention systems, network device log files, trouble tickets, firewalls, proxies, web and applications server log files, etc) and proves situational awareness of cyberspace battlefield. It provides the computer network defense provider with common analytic platform which informs and reduces risk associated with future material solutions and forms a blueprint for future Big Data Analytics. Big Data (analysis-of-all DoD Information Network sensor data) provides two optimized and accredited clusters deployed in support of JRSS and Defense Research and Engineering Network (DREN) with a tools suite accessible to Cyber Mission Forces via secure remote access. The Army's DCO activities are a construct of active cyberspace defenses which provide synchronized, real-time capability to discover, detect, analyze, and mitigate threats to and vulnerability of DoD networks and systems.</p> <p>Project DV4: Key Management Infrastructure (KMI) & DV5: Crypto Modernization (Crypto Mod). COMSEC is governed by the Chairman of the Joint Chiefs of Staff Instruction (CJCSA) 6510. In order to ensure Warfighters continue to have secured communications (i.e., encrypted data and voice), Army communications systems are required to support modern cryptographic capabilities by implementing modern algorithms. These efforts are consistent with Strategic Planning Guidance (SPG). These funding lines are key enablers of the Army Modernization Priorities in support of LOE 1, Unified Network.</p> <p>Project DV4: KMI. The Army Key Management Infrastructure (AKMI) is the Army's implementation of the National Security Agency (NSA) KMI ACAT IAM program, automating the functions of COMSEC electronic key management, control, planning, and distribution. AKMI supports the Army's ability to communicate and distribute Cryptographic data on the Army's tactical and strategic networks by limiting adversarial access to and reducing the vulnerability of, Army Command, Control, Communications, Computers, Cyber, Intelligence (C5I) systems. AKMI devices receive, store, manage, and transfer electronic key through the network to be loaded into communication devices such as radios and satellites to secure the network. Without this technology Warfighters are required to manually receive their cryptographic products by traveling to COMSEC account locations (which may not be co-located) and manually fill their devices.</p> <p>Project DV5: Crypto Modernization (Crypto Mod). Crypto Mod performs test, evaluation, development, and configuration management for cryptographic devices that receive key through fill devices and allow for secure communication through Army devices such as radios and satellite terminals. This program utilizes National Security</p> | | |

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> |
|---|---|

Agency (NSA) developed Communications Security (COMSEC) technologies within the Army providing encryption, trusted software, or standard operating procedures, and integrating these mechanisms into specified systems in support of securing the Army Tactical and Enterprise Networks. The effort supports network operations from end-to-end throughout the force thus mitigating networked vulnerabilities to Army information security systems. In order to ensure Warfighters continue to have secured communications (i.e., encrypted data and voice), Army communications systems are required to be upgraded to modern algorithms to meet emerging threat developed by our adversaries. Crypto Modernization necessitates the utilization of the latest NSA cryptographic capabilities in order to defeat adversarial efforts to decrypt, disrupt, or exploit US Army networks. COMSEC is the Army's implementation of NSA protections to create a unified network that is protected, resilient, and survivable.

Project DV4: KMI has no funding request in FY 2024.

Crypto Mod continues testing and evaluation of COMSEC devices in FY 2024 to confirm capability and interoperability on Army networks and tactical systems as well as identifying risk areas for compliance with COMSEC regulations and procedures. The program will test and evaluate Crypto Systems compliant devices, Suite B IPSec devices built on commercial standards, Cryptographic High Value Product (CHVP), Commercial Solutions for Classified (CSfC) Guidance, and new software releases to High Assurance Internet Protocol Encryptor (HAiPE) 4.X devices in accordance with AR 770-03 dated 16 July 2021. The program tests interoperability and provides ways to insert Data At Rest (DAR) and Data In Transit (DIT) technology within the existing and future network infrastructure. Additionally, this program evaluates performance of technologies and provides direction to ensure the lowest impact on performance while providing the greatest protection from loss of sensitive data.

| B. Program Change Summary (\$ in Millions) | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> |
|---|-----------------------|-----------------------|----------------------------|---------------------------|-----------------------------|
| Previous President's Budget | 15.680 | 17.209 | 16.675 | - | 16.675 |
| Current President's Budget | 15.680 | 17.209 | 15.323 | - | 15.323 |
| Total Adjustments | 0.000 | 0.000 | -1.352 | - | -1.352 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -1.352 | - | -1.352 |

Change Summary Explanation

FY 2024 funding decrease of \$1.352 million. \$1.001 million of this decrease is based on the realignment from PE 0303140A Information Systems Security Project, Project DV4: Key Management Infrastructure to PE 0605144A, Next Generation Load Device - Medium, Project BY6: Key Management Infrastructure Development. Decrease of \$0.418 million due to higher Army priorities. Increase of \$.067 million due to economic assumptions.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> | | | | Project (Number/Name) 491 / <i>Information Assurance Development</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| 491: <i>Information Assurance Development</i> | - | 6.937 | 7.816 | 7.035 | - | 7.035 | 8.042 | 8.052 | 8.138 | 8.229 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Project 491: Information Assurance (IA) Development. Supports the implementation of National Security Agency (NSA) developed Communications Security (COMSEC) technologies within the Army enterprise and tactical networks by ensuring COMSEC devices/systems are cryptographically interoperable and standard based. This entails architecture studies, technology assessments, secured devices testing, system integration and installation kits development to provide protections for fixed infrastructure post, camps and station networks as well as tactical networks. The cited work is consistent with Army's Mission Command Implementation Plan LOE 1, Network Enable Functions.

IA Development funding Implements, establishes functional and technical boundaries of cryptographic, key management and IA capabilities In Coordination With (ICW) the NSA, the Defense Information Systems Agency (DISA), and Joint Services, to secure National Security Systems (NSS), and National Security Information (NSI). Technical evaluations assess the security, operational effectiveness and network interoperability of advanced concepts/technologies to develop policies, standards, and fundamental building blocks for Army COMSEC capabilities that reduce the risk of future materiel solutions that could underperform and disrupt classified operations.

Develop and publish COMSEC and key management implementation planning guidance to identify, standardize, and govern the insertion of IA capabilities that will bridge operational gaps and support the DoD and NSA mandated requirements to enhance network capacity while providing secure information exchange of voice, video, and data IAW the Army Network Campaign Plan. This will be accomplished by interoperability test and evaluation, standards development, technology roadmap development and System of System Network Vulnerability Assessments (SoS NVA) to provide protections for the Army Integrated Tactical Networks.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: Oversight and implementation guidance of emerging Cryptographic and CS capabilities to ensure interoperability to maintain compliance with DoD, NSA, and Army policies and regulations. (CIO/G-6) | 6.937 | 7.816 | 7.035 |
| Description: The program provides oversight and guidance for technical research and evaluation of Cryptographic Modernization (CM) and Key Management (KM) capabilities to ensure IA compliance and interoperability. This effort improves operational effectiveness, ensures efficient implementation, and enhances network performance by deploying standardized COMSEC capabilities that are interoperable and supportable in Army, coalition and Joint operating environments. This program enables the Army to collaborate and participate in Joint and Army capability and technology evaluations efforts to define, improve, develop and publish Cyber Security (CS) standards for new/modernized technology insertion to support the Army future networks and key management enterprise. This effort assesses and defines risk mitigation of CS network vulnerabilities in end-to-end Army network operations and Common Operating Environment. (CIO/G-6) | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> | Project (Number/Name) 491 / <i>Information Assurance Development</i> |

B. Accomplishments/Planned Programs (\$ in Millions)

FY 2023 Plans:

Will continue to provide oversight for the executions of the Army's COMSEC Modernization initiatives including major ACC updates and replacements of existing devices and systems. Continue to evaluate and test new technologies for Army implementation in support of Cryptographic Modernization 2 (CM2) Transmission Security (TRANSEC) ICD, EKMS Tier 1 to KMI migration, Army last mile advanced key distribution concept development and ITN security architecture implementation. Continue to provide updated end-to-end, tactical-to-strategic COMSEC standardization and implementation guidance to meet Army's operational requirements. Continue to assess new key management technologies developed by DoD joint KMI program to determine the maturity for Army fielding to protect and strengthen the Army Network posture. Continue to work with DoD CIO, NSA, DISA and other Services to resolve cryptographic interoperability issues for both embedded and standalone systems and performed risk reduction testing of commercial products prior to insertion into Army for use to increase operational availability with documented operational value and rapid integration. Provide timely test and evaluate results to enable the Army to make sound investment strategic decisions and to reduce or eliminate duplications. Participate in operational assessment of NSA, DoD, Joint Staff and Service led Joint Capability Technology Demonstrations to align new technologies to documented Army and Service capability gaps and requirements for protecting National Security Systems and National Security Information. Continue to update and develop policies to posture Army's operations to implement innovative cryptographic and key management tools and services.

FY 2024 Plans:

Continue to provide oversight for the executions of the Army's Communications Security (COMSEC) Modernization initiatives including major Advanced Cryptographic Capabilities (ACC) and Cryptographic Modernization 2 (CM2) updates and replacements of existing devices and systems. Continue to evaluate and test emerging technologies for Army implementation in support of, Transmission Security (TRANSEC) Initial Capabilities Document (ICD), Electronic Key Management System (EKMS) Tier 1 to Key Management Infrastructure (KMI) migration, Army last mile advanced key distribution concept development and Multi-Domain Operations (MDO) security architecture implementation. Continue to provide updated end-to-end, tactical-to-strategic COMSEC standardization and implementation guidance to meet Army's operational requirements. Continue to assess new key management technologies developed by NSA's KMI program to determine the maturity for Army fielding to protect and strengthen the Army Unified Network posture. Continue to work with DoD CIO, Joint Staff, NSA, DISA and other Services to resolve cryptographic interoperability issues for both embedded and standalone cryptographic devices/systems and perform risk reduction testing of commercial cryptographic products prior to insertion into Army for use to increase operational availability with documented operational value and rapid integration. Provide timely test and evaluation results to enable the Army to make sound strategic investment decisions and to reduce or eliminate duplications. Participate in operational assessment of NSA, DoD, Joint Staff and Service-led Joint Capability Technology Demonstrations to align new technologies to documented Army and DoD capability gaps

| FY 2022 | FY 2023 | FY 2024 |
|---------|---------|---------|
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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|--|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / Information Systems Security Program | Project (Number/Name) 491 / Information Assurance Development |
|--|--|---|

| | | | |
|---|----------------|----------------|----------------|
| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
| and requirements for protecting National Security Systems and National Security Information. Continue to update and develop policies to posture Army's operations to implement innovative cryptographic and key management tools and services. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease reflects changed requirements for evaluations, emerging technology tests, and assessments of new key management technologies developed by NSA's KMI program to protect and strengthen the Army Unified Network posture in FY 2023. | | | |
| Accomplishments/Planned Programs Subtotals | 6.937 | 7.816 | 7.035 |

| | | | | | | | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
| Line Item | FY 2022 | FY 2023 | FY 2024 | FY 2024 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • DV5: <i>Crypto Modernization (Crypto Mod)</i> | 7.756 | 8.370 | 8.288 | - | 8.288 | 8.337 | 8.346 | 8.435 | 8.530 | Continuing | Continuing |
| • B96002: <i>CRYPTOGRAPHIC SYSTEMS (CRYPTO SYS)</i> | 47.990 | 50.151 | 87.423 | - | 87.423 | 56.273 | 56.459 | 56.486 | 56.062 | 0.000 | 410.844 |
| • BS9716: <i>NON PEO-SPARES</i> | 3.596 | 4.014 | 3.667 | - | 3.667 | 3.986 | 4.000 | 4.003 | 4.006 | 0.000 | 27.272 |

Remarks

D. Acquisition Strategy
The objective of the Cryptographic Systems program is to provide adaptive, flexible, and programmable cryptographic solutions using best practices, lessons learned and programmatic management to meet the challenge of modernizing the Army's aging cryptographic systems. Associated documents include CDD, approved by CIO/G6, 15 Jul 2010; ICD, approved by JROC, 25 Mar 2011; AAO; approved by G3, 15 Dec 2011 and revised and approved, 19 Jun 2015.

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / Information Systems Security Program | Project (Number/Name) 491 / Information Assurance Development | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| TECHNOLOGY TEST & EVALUATION (CIO/G6) | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DEFINE SECURITY & INTEROPERABILITY STANDARDS (CIO/G6) | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| COMSEC STRATEGY & CRYPTO TECHNOLOGY ROADMAP (CIO/G6) | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> | Project (Number/Name) 491 / <i>Information Assurance Development</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| TEST & EVALUATION OF CRYPTOGRAPHIC SYSTEMS (PL Net E) | 1 | 2014 | 4 | 2014 |
| STUDY OF CURRENT AND EMERGING CRYPTO ALGORITHMS AND TECHNOLOGIES (PL Net E) | 1 | 2015 | 2 | 2015 |
| TEST OF INE AND WIRELESS SOLUTION (PL Net E) | 1 | 2016 | 4 | 2018 |
| BIG DATA PILOT (PD ES-CYBER) | 1 | 2016 | 4 | 2016 |
| TECHNOLOGY TEST & EVALUATION (CIO/G6) | 1 | 2017 | 4 | 2027 |
| DEFINE SECURITY & INTEROPERABILITY STANDARDS (CIO/G6) | 1 | 2017 | 4 | 2027 |
| COMSEC STRATEGY & CRYPTO TECHNOLOGY ROADMAP (CIO/G6) | 1 | 2014 | 4 | 2027 |

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0303140A / Information Systems Security Program | | | | Project (Number/Name) DV4 / Key Management Infrastructure (KMI) | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| DV4: Key Management Infrastructure (KMI) | - | 0.987 | 1.023 | - | - | - | 1.407 | 1.409 | 1.425 | 1.441 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Modernization Priorities in support of LOE 1, Unified Network.

Communications Security (COMSEC) is governed by the Chairman of the Joint Chiefs of Staff Instruction (CJCSA) 6510. In order to ensure Warfighters continue to have secured communications (i.e., encrypted data and voice), Army communications systems are required to support modern cryptographic capabilities by implementing modern algorithms.

The Reprogrammable Single Chip Universal Encryptor (RESCUE) is a government owned reprogrammable cryptographic chip that incorporates KMI functionality and modern algorithms to encrypt and decrypt messages for the embedding.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Reprogrammable Cryptographic Chip Development and Evaluation | 0.987 | 1.023 | - |
| Description: The Reprogrammable Single Chip Universal Encryptor (RESCUE) is a reprogrammable cryptographic chip that incorporates KMI functionality and modern algorithms to encrypt and decrypt messages for the embedding device. The RESCUE is built upon a modular architecture to enable tailoring of the chip to meet the specific requirements of the embedding device. This effort creates a government owned potential universal cryptographic chip enabling the Army to decrease costs for encryption devices. | | | |
| FY 2023 Plans: The RESCUE effort will consist of maintaining lab equipment, embedment planning to utilize the RESCUE chip with new capabilities, requirements analysis, tracking part's obsolescence, and software/firmware baseline development. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Project DV4 has no funding request in FY 2024 due to realignment from PE 0303140A Information Systems Security Project, Project DV4: Key Management Infrastructure to PE 0605144A, Next Generation Load Device - Medium, Project BY6: Key Management Infrastructure Development. | | | |
| Accomplishments/Planned Programs Subtotals | 0.987 | 1.023 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / Information Systems Security Program | Project (Number/Name) DV4 / Key Management Infrastructure (KMI) |

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

| Line Item | FY 2022 | FY 2023 | FY 2024 | FY 2024 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To | Total Cost |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|------------|
| | | | Base | OCO | Total | | | | | Complete | |
| • B96004: KEY MANAGEMENT INFRASTRUCTURE | 78.283 | 75.541 | 72.289 | - | 72.289 | 31.524 | 31.699 | 28.697 | 24.050 | 0.000 | 342.083 |

Remarks

Line Item & Title:
B96004: Key Management Infrastructure (OPA2)

D. Acquisition Strategy

Army Key Management Infrastructure (AKMI) acquisition strategy consisted of Army, Air Force, and NSA Programs of Record (POR). AKMI is the Army's implementation of the National Security Agency (NSA) Key Management Infrastructure (KMI) ACAT IAM Program of Record. The AKMI allows the Army to manage, control, plan, and distribute electronic key for the ~1.5 million End Cryptographic Units (ECU)s necessary to communicate and distribute data on the Army's tactical and strategic networks such as radios, secure phones, and satellite terminals.

The AKMI Program includes the Simple Key Loader (SKL) and Automated Communications Engineering Software (ACES) workstation contracts managed by the Army, Tactical Key Loader (TKL) contract by the US Air Force, and the Management Clients (MGC) nodes by NSA.

The AKMI program funded development of a KMI compliant cryptographic engine, the government owned Reprogrammable Single Chip Universal Encryptor (RESCUE).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|--|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / Information Systems Security Program | Project (Number/Name) DV4 / Key Management Infrastructure (KMI) |
|--|--|---|

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|-----------------------------------|--|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| KMI Awareness (RESCUE Development and NSA Certification) | C/CPFF | Dynamics Research Corporation/Engility : APG, MD | 16.532 | 0.987 | Jul 2022 | 1.023 | Jul 2023 | - | | - | | - | Continuing | Continuing | Continuing |
| Subtotal | | | 16.532 | 0.987 | | 1.023 | | - | | - | | - | Continuing | Continuing | N/A |
| Project Cost Totals | | | 16.532 | 0.987 | | 1.023 | | - | | - | | - | Continuing | Continuing | N/A |

Remarks
Project DV4 has no funding request in FY 2024.

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | R-1 Program Element (Number/Name) PE 0303140A / Information Systems Security Program | | Project (Number/Name) DV4 / Key Management Infrastructure (KMI) | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Reprogrammable Cryptographic Chip Development (RESCUE) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> | Project (Number/Name) DV4 / <i>Key Management Infrastructure (KMI)</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Reprogrammable Cryptographic Chip Development (RESCUE) | 1 | 2019 | 4 | 2023 |

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> | | | | Project (Number/Name) DV5 / <i>Crypto Modernization (Crypto Mod)</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| DV5: <i>Crypto Modernization (Crypto Mod)</i> | - | 7.756 | 8.370 | 8.288 | - | 8.288 | 8.337 | 8.346 | 8.435 | 8.530 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

This funding line is a key enabler of the Army Modernization Priorities in support of LOE 1, Unified Network.

Project DV5, Cryptographic Modernization (Crypto Mod) supports the Army Network Modernization Strategy LOE 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy. Communications Security (COMSEC) is governed by the Chairman of the Joint Chiefs of Staff Instruction (CJCSA) 6510.

Crypto Mod performs test, evaluation, development, and configuration management for cryptographic devices that receive key through fill devices and allow for secure communication through Army devices such as radios and satellite terminals. In order to ensure Warfighters continue to have secured communications (i.e., encrypted data and voice), Army communications systems are required to be upgraded to modern algorithms to meet emerging threat developed by our adversaries. Crypto Modernization necessitates the utilization of the latest National Security Agency (NSA) cryptographic capabilities in order to defeat adversarial efforts to decrypt, disrupt, or exploit US Army networks. Communications Security (COMSEC) is the Army's implementation of NSA protections to create a unified network that is protected, resilient, and survivable.

To accomplish this multi-faceted effort, consistent with Strategic Planning Guidance and the Army Modernization and Strategy Plan, Crypto Mod performs evaluation of emerging threats, development of advances protections to defeat these threats, testing of commercial and government off the shelf applications developed to provide protections against identified threats, and assessment of new software and hardware updates to these end user devices and software to ensure they remain hardened against cyber-attack. This ensures that all endpoints from singular NIPRNET, SIPRNET, JWICS and Intelligence workstations in the strategic Enterprise to Tactical vehicles and equipment utilized by dismounted personnel forward deployed in hot zone are protected when processing the critical mission and voice data that provides the strategic overmatch required to accomplish the Army's mission.

FY 2024 funds in the amount of \$8.252 million will support the testing of all existing and emerging encryptors for Functionality, Security, and Interoperability. The program will continue testing and evaluation of COMSEC devices to confirm capability and interoperability on Army networks and tactical systems as well as identifying risk areas for compliance with COMSEC regulations and procedures.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: VINSON/ANDVT (Advanced Narrowband Digital Voice Terminal) Cryptographic Modernization (VACM) program | 0.306 | 0.329 | 0.332 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> | Project (Number/Name) DV5 / <i>Crypto Modernization (Crypto Mod)</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>Description: This program researches, assesses, tests, plans and works to integrate VACM products for the Army. The VACM program is a NSA mandated program established to replace legacy external cryptographic devices such as the KY-57, KY-99A, KY-58, KY-99, KY-100 and CV- 3591 / KYV-5. In order to ensure the confidentiality, integrity and availability of classified communications, the cryptographic modules must be tested for interoperability and form fit to ensure a successful fielding. Each software release will require testing to insure comparability and interoperability.</p> <p>FY 2023 Plans: The program will continue to test and evaluate new software update to VACM devices to confirm continued capability and interoperability on Army networks and different tactical platforms as well as identifying new risk areas for compliance with COMSEC regulations and procedures. Development activities are ongoing as programs continue fielding, performing site surveys and installing at both CONUS and OCONUS locations.</p> <p>FY 2024 Plans: The program continues to test and evaluate new software update to VACM devices to confirm continued capability and interoperability on Army networks and different tactical platforms as well as identifying new risk areas for compliance with COMSEC regulations and procedures. Development activities are ongoing as programs continue fielding, performing site surveys and installing at both CONUS and OCONUS locations.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase supports planned lifecycle of the effort.</p> | | | |
| <p>Title: Cryptographic Systems Test and Evaluation</p> <p>Description: This program supports the Army Cryptographic Modernization. This is accomplished by providing test and evaluation capabilities to the COMSEC community in order to assess emerging technologies before being released and approved for Army use; testing will be performed on hardware, software and network systems.</p> <p>FY 2023 Plans: Conduct testing and evaluation of COMSEC devices Link Encryptor Family (LEF), In-Line Network Encryptor (INE), Secure Voice (SV) to confirm capability and interoperability on Army networks and tactical systems as well as identifying risk areas for compliance with COMSEC regulations and procedures, with particular emphasis on the Advanced Cryptographic Capabilities (ACC) program lead by the NSA. The program will test and evaluate Crypto Systems compliant devices, Suite B IPsec devices built on commercial standards, Cryptographic High Value Product (CHVP), Commercial Solutions for Classified (CSfC) Guidance and new software releases to HAIPE 4.X devices in accordance with AR 700-142 Revision dated 8 June 2018. These devices provides the critical security backbone for all NIPRNET, SIPRNET, JWICS and Intelligence networks in both the Tactical and</p> | 5.789 | 6.258 | 5.530 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> | Project (Number/Name) DV5 / <i>Crypto Modernization (Crypto Mod)</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>Enterprise networks. The program tests interoperability and provides ways to insert data at rest (DAR) and data in transit (DIT) technology within the existing and future network infrastructure to defend against adversary attack and exploitation.</p> <p>FY 2024 Plans: Continue to conduct testing and evaluation of COMSEC devices to confirm capability and interoperability on Army networks and tactical systems as well as identifying risk areas for compliance with COMSEC regulations and procedures, with particular emphasis on the Advanced Cryptographic Capabilities (ACC) program lead by the NSA. The program will test and evaluate Crypto Systems compliant devices, Suite B IPsec devices built on commercial standards, Cryptographic High Value Product (CHVP), and new software releases to HAIPE 4.X devices in accordance with AR 700-142 Revision dated 8 June 2018. These devices provide the critical security backbone for all NIPRNET, SIPRNET, JWICS and Intelligence networks in both the Tactical and Enterprise networks. The program tests interoperability and provides ways to insert data at rest (DAR) and data in transit (DIT) technology within the existing and future network infrastructure to defend against adversary attack and exploitation.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The decrease is due to the reduced requirements for lab equipment.</p> | | | | |
| <p>Title: High Assurance Internet Protocol Encryption (HAIPE) extension manager</p> <p>Description: A management tool to configure the new extensions to the HAIPE standard and process the resulting data to provide early indications of cyber-attacks.</p> <p>FY 2023 Plans: The program will continue software development efforts that will provide configuration and management of the HAIPE extensions and the user interface for collecting and analyzing the data that results from implementation of these HAIPE extensions. Addition of ACC software feature and new devices will be implemented.</p> <p>FY 2024 Plans: Continue software development efforts that will provide configuration and management of the HAIPE extensions and the user interface for collecting and analyzing the data that results from implementation of these HAIPE extensions. Addition of ACC software feature and new devices will be implemented.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The increase is due to additional configuration and management development of the HAIPE in FY 2024.</p> | | 1.004 | 1.078 | 1.714 |
| <p>Title: Program Management Office Support</p> | | 0.657 | 0.705 | 0.712 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> | Project (Number/Name) DV5 / <i>Crypto Modernization (Crypto Mod)</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>Description: Program management includes overall management of program execution, major events, reporting, funds execution, contract management, and logistical support. Includes participation in program planning and Integrated Product Team meetings.</p> <p>FY 2023 Plans: FY 2023 funds will provide overall management and oversight to implement Crypto Mod test, evaluation, development and configuration management for cryptographic devices - to include Matrix and Contractor support.</p> <p>FY 2024 Plans: FY 2023 funds will provide overall management and oversight to implement Crypto Mod test, evaluation, development and configuration management for cryptographic devices - to include Matrix and Contractor support.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase supports planned lifecycle of the effort.</p> | | | |
| Accomplishments/Planned Programs Subtotals | 7.756 | 8.370 | 8.288 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • B96002: <i>CRYPTOGRAPHIC SYSTEMS (CRYPTO SYS)</i> | 47.990 | 50.151 | 87.423 | - | 87.423 | 56.273 | 56.459 | 56.486 | 56.062 | 0.000 | 410.844 |
| • BS9716: <i>NON PEO-SPARES</i> | 3.596 | 4.014 | 3.667 | - | 3.667 | 3.986 | 4.000 | 4.003 | 4.006 | 0.000 | 27.272 |

Remarks
 Line Item & Title:
 B96002 - Cryptographic Systems - OPA2
 BS9716 - NON PEO-SPARES - OPA4

D. Acquisition Strategy
 The Cryptographic Systems procures off of NSA IDIQ contracts. Army RDT&E is used on existing and emerging encryptors which are tested and evaluated for Functionality, Security, Interoperability, and backward compatibility on software and hardware for both Tactical and Enterprise systems to ensure they remain hardened against cyberattack. CDD, approved by CIO/G6, 15 Jul 2010; ICD, approved by JROC, 25 Mar 2011; AAO; approved by G-3, 15 Dec 2011 and revised and approved, 19 Jun 2015.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | | |
|--|------------------------|-------------------------------------|-------------|--|------------|---------|------------|---|------------|-------------|------------|------------------|------------------|------------|--------------------------|--|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | | |
| 2040 / 7 | | | | PE 0303140A / Information Systems Security Program | | | | DV5 / Crypto Modernization (Crypto Mod) | | | | | | | | |
| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| Program Management Office Support | Various | PEO C3T & CECOM : Various; APG, MD | 0.644 | 0.657 | Dec 2021 | 0.705 | Dec 2022 | 0.712 | Dec 2023 | - | | 0.712 | 0.000 | 2.718 | Continuing | |
| Subtotal | | | 0.644 | 0.657 | | 0.705 | | 0.712 | | - | | 0.712 | 0.000 | 2.718 | N/A | |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| System Engineering | SS/LH | CCDC C5ISR S&TCD : APG, MD | 7.629 | 1.031 | Nov 2021 | 1.107 | Nov 2022 | 1.086 | Nov 2023 | - | | 1.086 | Continuing | Continuing | Continuing | |
| Engineering Support | C/CPFF | CACI : Aberdeen Maryland | 8.419 | 0.650 | Feb 2022 | 0.990 | Feb 2023 | 0.960 | Feb 2024 | - | | 0.960 | Continuing | Continuing | Continuing | |
| Engineering Support | C/CPFF | Booz Allen Hamilton (BAH) : APG, MD | 5.177 | 0.272 | Feb 2022 | - | | - | | - | | - | Continuing | Continuing | Continuing | |
| Subtotal | | | 21.225 | 1.953 | | 2.097 | | 2.046 | | - | | 2.046 | Continuing | Continuing | N/A | |
| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| Test & Evaluation | SS/LH | CCDC C5ISR S&TCD : APG, MD | 2.171 | 1.670 | Nov 2021 | 1.793 | Nov 2022 | 1.789 | Nov 2023 | - | | 1.789 | 0.000 | 7.423 | - | |
| Test & Evaluation | C/CPFF | CACI : APG, MD | 7.849 | 3.476 | Feb 2022 | 3.775 | Feb 2023 | 3.741 | Feb 2024 | - | | 3.741 | 0.000 | 18.841 | - | |
| Subtotal | | | 10.020 | 5.146 | | 5.568 | | 5.530 | | - | | 5.530 | 0.000 | 26.264 | N/A | |
| Project Cost Totals | | | 31.889 | 7.756 | | 8.370 | | 8.288 | | - | | 8.288 | Continuing | Continuing | N/A | |
| Remarks | | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / Information Systems Security Program | Project (Number/Name) DV5 / Crypto Modernization (Crypto Mod) | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| VINSON/ANDVT Cryptographic Modernization (VACM) INTEROP | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TEST AND EVALUATION OF SECURE VOICE SW & HW | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TEST AND EVALUATION OF INE SW & HW | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HAIPE EXTENSION MANAGER | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303140A / <i>Information Systems Security Program</i> | Project (Number/Name) DV5 / <i>Crypto Modernization (Crypto Mod)</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| VINSON/ANDVT Cryptographic Modernization (VACM) INTEROPERABILITY | 1 | 2016 | 4 | 2035 |
| TEST AND EVALUATION OF SECURE VOICE SW & HW | 4 | 2013 | 4 | 2035 |
| TEST AND EVALUATION OF INE SW & HW | 1 | 2017 | 4 | 2035 |
| HAIPE EXTENSION MANAGER | 1 | 2017 | 4 | 2035 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> |
|---|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 43.643 | 22.600 | 13.082 | - | 13.082 | 2.561 | 2.596 | 2.632 | 2.669 | 0.000 | 89.783 |
| 083: <i>Global Combat Support Sys - Army</i> | - | 14.388 | 22.600 | 13.082 | - | 13.082 | 2.561 | 2.596 | 2.632 | 2.669 | 0.000 | 60.528 |
| EK2: <i>GCSS-A Increment 2</i> | - | 29.255 | - | - | - | - | - | - | - | - | 0.000 | 29.255 |

A. Mission Description and Budget Item Justification

(Project 083) GCSS-Army Increment 1 gives combat forces a decisive edge by providing soldiers a seamless flow of timely, accurate, accessible, and secure logistics information to get combat power at the right place, at the right time. The GCSS-Army program is an information and communications technology investment that provides key enabling support to the transformation of the Army into a network-centric, knowledge-based future force. The GCSS-Army approved Capability Development Document (CDD) and Capability Production Document (CPD) require an enterprise approach to replace current logistics and maintenance Standard Army Management Information Systems (STAMIS) to include supply, maintenance, ammunition, aviation, and property book. GCSS-Army implements best business practices to streamline supply, accountability, maintenance, distribution, and reporting procedures in support of the future force transition path of The Army Campaign Plan.

(Project EK2) GCSS-Army Increment 2 consists of three waves: Wave 1- Enterprise Aviation (EAVN); Wave 2- Business Intelligence/Business Warehouse (BI/BW); Wave 3- Army Prepositioned Stocks (APS). Increment 2 was built on the current foundation by providing auditable EAVN maintenance, enhanced BI/BW, and APS functional capabilities which directly impacts the speed at which a deploying unit can draw combat equipment. Waves 1 and 2 deliver greater efficiencies to Aviation Logistics warfighters and improved information flow and accuracy in real time to decision makers, helping them make better decisions faster on the battlefield. Wave 3 has sunset the Army War Reserve Deployment System (AWRDS) legacy system.

GCSS-A must take critical steps towards integration and implementation of the next generation of Enterprise Business Systems capabilities. This effort will address the obsolescence of existing SAP Enterprise Resource Planning (ERP) logistics and financial management platforms that the vendor plans to sunset by FY 2032. GCSS-A's modernization work sets the conditions for development of a converged, post-modern Defense Business System that streamlines and integrates the Army's core business functions.

GCSS-A must identify redundant processes as candidates for business process re-engineering. Funding will support the 1) market research of Industry best practices, 2) Initiation of an Army Enterprise Development Environment to enable prototyping which reduces risk by aiding the requirements development. This environment includes: Cloud-hosted infrastructure, applications, and programs and tools, 3) government Program Management and Systems Engineering and Technical Assistance (SETA) contractors needed to plan for and manage the initiation of the post-modern system implementation effort.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> |
|---|---|

The funds in the GCSS-Army Increment 1 Research Development Test & Evaluation (RDT&E) line are for building the software solution for disconnected supply, maintenance and accountability, and Store and Forward Capability. In FY 2021, the Army began the design, development and build of disconnected operations capability to support ground operations and will complete this effort in FY 2024.

In FY 2024 after transition to capability support, RDT&E funding for Continuous Enhancements will be used to execute system change requests (SCRs) to enhance sustainment activities, accountability, auditability, and calculations of total cost of ownership. Implementation of SCRs enhance capability support and effectiveness by synchronizing system data and utilizing enterprise interface tools to eliminate input errors.

In FY 2020, the Army Acquisition Executive (AAE) approved a change in technical approach for GCSS-Army Increment 2 due to unforeseen technical complexities identified by the vendor which would have significantly increased cost and schedule. The new technical approach will deliver capability in five capability drops for Waves 1 and 2 to be developed and deployed incrementally from FY 2020 thru FY 2023.

GCSS-Army Enterprise Aviation is integrating the Aircraft Notebook (ACN) data into GCSS-Army via an interface with the Enterprise Aviation Middleware components.

Enterprise Resource Plan (ERP) modernization will continue to support EBS-C in FY 2023 before full transition of efforts to EBS-C in FY 2024.

Advanced Manufacturing (AdvM) Data Repository (DR) is an Army priority. AdvM DR will fully integrate AdvM capabilities and enable Digital Thread (DT) within the Army ERPs. It will integrate the AdvM DR with the Army Futures Command (AFC) Enterprise Product Management (ePDM) system providing a fully automated capability for the transfer of the AdvM product configuration data to the AdvM DR. Capability will reduce manual efforts to transfer configuration data to the AdvM DR ensuring accuracy and configuration of AdvM print data.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 45.297 | 27.100 | 0.000 | - | 0.000 |
| Current President's Budget | 43.643 | 22.600 | 13.082 | - | 13.082 |
| Total Adjustments | -1.654 | -4.500 | 13.082 | - | 13.082 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | -4.500 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -1.654 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 13.082 | - | 13.082 |

Change Summary Explanation

Increase of FY2024 Base dollars for initiation of Advanced Manufacturing Data Repository and continuation of Product Development Enhancements.

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | | | | Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| 083: <i>Global Combat Support Sys - Army</i> | - | 14.388 | 22.600 | 13.082 | - | 13.082 | 2.561 | 2.596 | 2.632 | 2.669 | 0.000 | 60.528 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

GCSS-Army Increment 1 provides critical Army sustainment support to the soldier with a seamless flow of timely, accurate, accessible, and secure information management that gives combat forces a decisive edge and is essential for combat readiness. The GCSS-Army approved Capability Development Document (CDD) and Capability Production Document (CPD) require an enterprise approach to replace current logistics and maintenance Standard Army Management Information Systems (STAMIS) to include supply, maintenance, ammunition and property book. GCSS-Army implements best business practices to streamline supply, accountability, maintenance, distribution, and reporting procedures in support of the future force transition path of The Army Campaign Plan. GCSS-Army is financially compliant and is a key component for the Army Enterprise Strategy to be financially auditable.

FY 2023 RDT&E funds for ERP Modernization will continue to support EBS-C efforts until the efforts transition to EBS-C program in FY 2024.

The FY 2024 funds in the GCSS-Army Increment 1 Research Development Test & Evaluation (RDT&E) line are for building the software solution for disconnected supply, maintenance and accountability, and Store and Forward capability. The Army requires a disconnected operations architecture for GCSS-Army to support ground mission. Currently the Army has battlefield gaps without network connectivity: inability to maintain or regenerate combat power, order/process spare parts, track battle losses, or conduct maintenance. The disconnected operations architecture will alleviate these problems when there are disruptions in communications or cyber-attacks. The FY 2024 funding also supports critical change requests in each fiscal year, coming from the warfighter and prioritized by the Combat Developer, for the baseline system. Implementation of SCRs enhance capability support and effectiveness by synchronizing system data and utilizing enterprise interface tools to eliminate input errors.

Advanced Manufacturing (AdvM) Data Repository (DR) is an Army priority. AdvM DR will fully integrate AdvM capabilities and enable the Digital Thread (DT) within the Army ERPs. It will integrate the AdvM DR with the Army Futures Command (AFC) Enterprise Product Management (ePDM) system providing a fully automated capability for the transfer of AdvM product configuration data to the AdvM DR. Capability will reduce manual efforts to transfer configuration data to the AdvM DR ensuring accuracy and configuration control of AdvM print data.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Product Development | 14.388 | - | 7.800 |
| Description: The funds in the GCSS-Army Increment 1 RDT&E line are for building the software solution for disconnected supply, maintenance and accountability, and Store and Forward capability. The Army requires a disconnected operations | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>architecture for GCSS-Army to support ground mission. The FY 2024 funding completes the development of the software solution for disconnected supply, maintenance and accountability.</p> <p>FY 2024 Plans: The FY 2024 RDT&E funds are for building the software solution for disconnected supply, maintenance and accountability, and Store and Forward capability. The Army requires a disconnected operations architecture for GCSS-Army to support ground mission.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase in FY 2024 funding for continuous support in the development of disconnected operations.</p> | | | |
| <p>Title: Product Development and Modernization</p> <p>Description: RDT&E funding in FY 2023 to support ERP Modernization will focus on risk reduction, market research, provide analysis and prototype(s) demonstrating key Audit, Finance and Logistics capabilities, application and technical architecture to support the next phases of the ERP modernization. In support of this, government Program Management and Systems Engineering and Technical Assistance (SETA) contractors will be needed to plan for and manage the initiation of the ERP systems implementation effort. A cloud prototype(s) environment(s) will be established to support the development of modernized finance and logistics capabilities in compliance with Impact Level 4 (IL4) and Impact Level 6 (IL6) requirements. In addition, significant and continuous Business Process Re-engineering will be required to develop end to end processes based on commercial off the shelf software best practices to support limited to no customization approach and produce a solution that is commercial as possible and military as necessary.</p> <p>FY 2023 Plans: RDT&E funding in FY 2023 to support ERP Modernization will focus on risk reduction, market research, provide analysis and prototype(s) demonstrating key Audit, Finance and Logistics capabilities, application and technical architecture to support the next phases of the ERP modernization. In support of this, government Program Management and Systems Engineering and Technical Assistance (SETA) contractors will be needed to plan for and manage the initiation of the ERP systems implementation effort. A cloud prototype(s) environment(s) will be established to support the development of modernized finance and logistics capabilities in compliance with Impact Level 4 (IL4) and Impact Level 6 (IL6) requirements. In addition, significant and continuous Business Process Re-engineering will be required to develop end to end processes based on commercial off the shelf software best practices to support limited to no customization approach and produce a solution that is commercial as possible and military as necessary.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> | - | 8.829 | - |

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|--|---|---|----------------|----------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| Decrease in FY24 funding reflects ERP Development & Modernization efforts that characterize the next iteration for SAP based ERPs, has moved to EBS-C which represents convergence of logistics and finance ERPs under OSD PE 0605013A in FY24. | | | | |
| <p>Title: ERP Modernization Program Management Support</p> <p>Description: RDT&E funding in FY 2023 to support ERP Modernization will focus on risk reduction, market research, provide analysis and prototype(s) demonstrating key Audit, Finance and Logistics capabilities, application and technical architecture to support the next phases of the ERP modernization. In support of this, government Program Management and Systems Engineering and Technical Assistance (SETA) contractors will be needed to plan for and manage the initiation of the ERP systems implementation effort. A cloud prototype(s) environment(s) will be established to support the development of modernized finance and logistics capabilities in compliance with Impact Level 4 (IL4) and Impact Level 6 (IL6) requirements. In addition, significant and continuous Business Process Re-engineering will be required to develop end to end processes based on commercial off the shelf software best practices to support limited to no customization approach and produce a solution that is commercial as possible and military as necessary.</p> <p>FY 2023 Plans: RDT&E funding in FY 2023 to support ERP Modernization will focus on risk reduction, market research, provide analysis and prototype(s) demonstrating key Audit, Finance and Logistics capabilities, application and technical architecture to support the next phases of the ERP modernization. In support of this, government Program Management and Systems Engineering and Technical Assistance (SETA) contractors will be needed to plan for and manage the initiation of the ERP systems implementation effort. A cloud prototype(s) environment(s) will be established to support the development of modernized finance and logistics capabilities in compliance with Impact Level 4 (IL4) and Impact Level 6 (IL6) requirements. In addition, significant and continuous Business Process Re-engineering will be required to develop end to end processes based on commercial off the shelf software best practices to support limited to no customization approach and produce a solution that is commercial as possible and military as necessary. Disconnected Ops will be addressed as directed.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease in FY24 funding reflects movement of ERP modernization Program management support team, overseeing the next generation for SAP based ERPs, to EBS-C which represents convergence of logistics and finance ERPs under OSD PE 0605013A in FY24.</p> | | - | 8.570 | - |
| <p>Title: Cloud Support Development</p> <p>Description: RDT&E funding in FY 2023 to support ERP Modernization will focus on risk reduction, market research, provide analysis and prototype(s) demonstrating key Audit, Finance and Logistics capabilities, application and technical architecture to support the next phases of the ERP modernization. In support of this, government Program Management and Systems Engineering and Technical Assistance (SETA) contractors will be needed to plan for and manage the initiation of the ERP systems</p> | | - | 4.376 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| <p>implementation effort. A cloud prototype(s) environment(s) will be established to support the development of modernized finance and logistics capabilities in compliance with Impact Level 4 (IL4) and Impact Level 6 (IL6) requirements. In addition, significant and continuous Business Process Re-engineering will be required to develop end to end processes based on commercial off the shelf software best practices to support limited to no customization approach and produce a solution that is commercial as possible and military as necessary.</p> <p>FY 2023 Plans: RDT&E funding in FY 2023 to support ERP Modernization will focus on risk reduction, market research, provide analysis and prototype(s) demonstrating key Audit, Finance and Logistics capabilities, application and technical architecture to support the next phases of the ERP modernization. In support of this, government Program Management and Systems Engineering and Technical Assistance (SETA) contractors will be needed to plan for and manage the initiation of the ERP systems implementation effort. A cloud prototype(s) environment(s) will be established to support the development of modernized finance and logistics capabilities in compliance with Impact Level 4 (IL4) and Impact Level 6 (IL6) requirements. In addition, significant and continuous Business Process Re-engineering will be required to develop end to end processes based on commercial off the shelf software best practices to support limited to no customization approach and produce a solution that is commercial as possible and military as necessary.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease in FY24 funding reflects ERP Development & Modernization cloud support development efforts movement to EBS-C which represents convergence of logistics and finance ERPs under OSD PE 0605013A in FY24.</p> | | | |
| <p>Title: Advanced Manufacturing Data Repository</p> <p>Description: Advanced Manufacturing (AdvM) Data Repository (DR) is an Army priority. AdvM DR will fully integrate AdvM capabilities and enable the Digital Thread (DT) within the Army ERPs. It will integrate the AdvM DR with the Army Futures Command (AFC) Enterprise Product Management (ePDM) system providing a fully automated capability for the transfer of AdvM product configuration data to the AdvM DR. Capability will reduce manual efforts to transfer configuration data to the AdvM DR ensuring accuracy and configuration control of AdvM print data.</p> <p>FY 2024 Plans: Planned accomplishments FY 2024: Commence work developing integration with the Army Futures Command (AFC) Enterprise Product Data Management (ePDM) system eliminating manual processes and ensuring configuration control of print data.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funds added to FY 2024 RDT&E for Advanced Manufacturing.</p> | - | - | 3.610 |
| <p>Title: Continuous Enhancements</p> | - | - | 1.672 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>Description: The funds in the GCSS-Army Increment 1 RDT&E line are for continuous enhancements. In capability support phase, the RDT&E funding will be used to execute system change requests to enhance sustainment activities, accountability, auditability, and calculations of total cost of ownership.</p> <p>FY 2024 Plans: The funds will support GCSS-A Audit related fixes and Cyber updates as required. The remaining balance of funds are for critical change requests, coming from the Combat Developer and prioritized by the HQDA G4 and USA CASCOM.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Functional request for FY 2024 funding for continuous enhancements.</p> <p>Title: SBIR/STTR Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC §638.</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638.</p> | - | 0.825 | - |
| Accomplishments/Planned Programs Subtotals | 14.388 | 22.600 | 13.082 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
| • OMA - GCSS-ARMY APE 432612000: GCSS-ARMY OMA | 48.224 | 54.603 | 70.095 | - | 70.095 | 52.025 | 55.686 | 61.635 | 61.445 | 0.000 | 403.713 |

Remarks
OMA dollars include funding for both GCSS-Army INC 1 and INC 2 programs. OMA-funded support includes cloud hosting, software/hardware maintenance, and PMO Support.

D. Acquisition Strategy
GCSS-Army will design and develop the software solution for disconnected ground operations . The program will design and build user screens for disconnected supply, maintenance and accountability. The Army will use a disconnected operations architecture for GCSS-Army to support the ground missions. In FY 2021, the program office awarded the initial contract supporting disconnected prototyping. In FY 2023 and FY 2024, the program will complete the OTA and prepare for production decision.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i> |

FY 2024 will include continuous enhancements task orders as necessary and contract for Advanced Manufacturing.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i> |
|--|---|---|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| SBIR/STTR | TBD | TBD : TBD | - | - | | 0.825 | | - | | - | | - | 0.000 | 0.825 | - |
| Subtotal | | | - | - | | 0.825 | | - | | - | | - | 0.000 | 0.825 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Enterprise Resource Planning (ERP) design and development | C/Various | Accenture Federal LLC : Arlington, VA 22203 | 467.058 | - | | - | | 1.672 | Dec 2023 | - | | 1.672 | 0.000 | 468.730 | 457.056 |
| Disconnected Operations Solution | SS/TBD | Ernst & Young : Arlington VA | 20.883 | 14.388 | | - | | 7.800 | Jan 2024 | - | | 7.800 | 0.000 | 43.071 | - |
| ERP Modernization SW Development | Option/TBD | TBD : TBD | - | - | | 8.829 | | - | | - | | - | 0.000 | 8.829 | - |
| ERP Modernization Cloud Support Development | Option/TBD | TBD : TBD | - | - | | 4.376 | | - | | - | | - | 0.000 | 4.376 | - |
| Advanced Manufacturing Data Repository | C/CPFF | Accenture : Springfield VA | - | - | | - | | 3.610 | Dec 2023 | - | | 3.610 | 0.000 | 3.610 | - |
| Subtotal | | | 487.941 | 14.388 | | 13.205 | | 13.082 | | - | | 13.082 | 0.000 | 528.616 | N/A |

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--------------------------------------|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| ERP Modernization Program Management | C/T&M | Logistics Management Institute : Tysons VA | - | - | | 8.570 | | - | | - | | - | 0.000 | 8.570 | - |
| Subtotal | | | - | - | | 8.570 | | - | | - | | - | 0.000 | 8.570 | N/A |

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|---|--------------------|----------------|--|---|--|---------------------|--------------------|---|-------------------------|-------------------|---------------------------------|
| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | Date: March 2023 | | | |
| Appropriation/Budget Activity 2040 / 7 | | | | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | | | | Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i> | | | |
| | Prior Years | FY 2022 | | FY 2023 | | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
| Project Cost Totals | 487.941 | 14.388 | | 22.600 | | 13.082 | - | 13.082 | 0.000 | 538.011 | N/A |

Remarks

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| | | |
|--|--|--|
| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support Syst</i> <i>em</i> | Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i> <i>em</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---|---|---|---|------------|---|---|---|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Continuous Enhancements (Design and Development) | [Blue bar spanning all quarters from FY 2022 to FY 2028] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Disconnected Operations Solution (Test and Development) | [Blue bar spanning all quarters from FY 2022 to Q4 FY 2024] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Disconnected Operations Solution (Deployment) | [Blue bar spanning Q1 FY 2025 to Q4 FY 2025] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ERP Modernization Risk Reduction Acquisition Decision Me... | ▲ 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ERP Modernization Other Transaction Authority Start | ▲ 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ERP Modernization Prototype Award 1 | ▲ 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ERP Modernization Capability Build 1 | | | | | [Blue bar] | | | | | | | | | | | | | | | | | | | | | | | |
| ERP Modernization transition to EBS-C | | | | | | | | | ▲ 4 | | | | | | | | | | | | | | | | | | | |
| Advanced Manufacturing Data Repository | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Seg 2 Contract Award | 1 | 2008 | 1 | 2008 |
| Increment 1 - Acquisition Review | 2 | 2008 | 2 | 2008 |
| Increment 1/Segment 1 Operational Assessment | 1 | 2008 | 3 | 2010 |
| Increment 1 - Milestone B | 4 | 2008 | 4 | 2008 |
| Increment 1/Release 1.1 DTOE | 3 | 2010 | 4 | 2010 |
| GCSS-Army Release 1.1 Design, Build, Test & Stabilize | 1 | 2011 | 3 | 2011 |
| Increment 1 - Milestone C | 4 | 2011 | 4 | 2011 |
| Release 1.1 Initial Operational Test and Evaluation (IOT&E) | 1 | 2012 | 1 | 2012 |
| Release 1.1 Stabilization | 2 | 2011 | 1 | 2013 |
| Lead Site Verification | 1 | 2013 | 1 | 2013 |
| Release 1.1 Full Deployment Decision | 1 | 2013 | 1 | 2013 |
| Field Wave 1 | 1 | 2013 | 1 | 2016 |
| GCSS-Army Release 1.2 (Wave 2) Plan, Analyze, Design, Build & Test | 3 | 2011 | 4 | 2015 |
| Release 1.2 (Wave 2) Lead Site Verification Test | 3 | 2015 | 3 | 2015 |
| Release 1.2 (Wave 2) In Progress Review | 4 | 2015 | 4 | 2015 |
| Field Release 1.2 (Wave 2) | 1 | 2015 | 1 | 2018 |
| Continuous Enhancements (Design and Development) | 1 | 2018 | 4 | 2028 |
| Disconnected Operations Solution (Test and Development) | 1 | 2021 | 4 | 2024 |
| Disconnected Operations Solution (Deployment) | 1 | 2025 | 4 | 2025 |
| ERP Modernization Functional Requirements ATP | 4 | 2021 | 4 | 2021 |
| ERP Modernization Risk Reduction Acquisition Decision Memorandum | 1 | 2022 | 1 | 2022 |
| ERP Modernization Other Transaction Authority Start | 3 | 2022 | 3 | 2022 |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) 083 / <i>Global Combat Support Sys - Army</i> |

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| ERP Modernization Prototype Award 1 | 1 | 2023 | 1 | 2023 |
| ERP Modernization Capability Build 1 | 1 | 2023 | 4 | 2023 |
| ERP Modernization transition to EBS-C | 4 | 2023 | 4 | 2023 |
| Advanced Manufacturing Data Repository | 1 | 2024 | 4 | 2024 |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|---|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) EK2 / <i>GCSS-A Increment 2</i> |
|--|---|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| EK2: <i>GCSS-A Increment 2</i> | - | 29.255 | - | - | - | - | - | - | - | - | 0.000 | 29.255 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

(Project EK2) GCSS-Army Increment 2 was built on the current foundation by providing auditable Army Enterprise Aviation maintenance, enhanced Business Intelligence/Business Warehouse (BI/BW) and Army Pre-Positioned Stocks (APS) functional capabilities and has sunset the legacy system Army War Reserve Deployment System (AWRDS). Increment 2 delivered greater efficiencies to Aviation Logistics warfighters and improve information flow and accuracy in real time to decision makers, helping them make better decisions faster on the battlefield. This Project developed the underlying common architecture for the next generation Enterprise Business System converged capabilities. This includes efforts to implement updated Business Processes through Business Process Reengineering in a modernized technical capability.

EK2 (INC 2) does not have any RDT&E funding requests after FY 2022.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| Title: System Design, Develop and Build | 24.891 | - | - |
| Description: The purpose of this phase is to begin the system development for an incremental capability that is affordable and executable to satisfy the Key Performance Parameters and Key System Attributes. | | | |
| Title: Government System Test and Evaluation | 4.364 | - | - |
| Description: Government System Test and Evaluation | | | |
| Accomplishments/Planned Programs Subtotals | 29.255 | - | - |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
|--|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| • W11011: <i>GCSS-Army Increment 2</i> | 8.715 | 4.102 | 1.987 | - | 1.987 | 2.717 | - | - | - | 0.000 | 17.521 |

Remarks

D. Acquisition Strategy

GCSS-Army Increment 2 continues the evolutionary acquisition strategy of Increment 1 and will define, develop, and deploy additional and enhanced capabilities to GCSS-Army based upon proven technology, time-phased requirements, projected threat assessments, and demonstrated manufacturing capabilities.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) EK2 / <i>GCSS-A Increment 2</i> |

GCSS-Army Increment 2 is being implemented in three waves:

Wave 1 provides the Army Enterprise Aviation logistics capability. Government System Integrator is the Combat Capability Development Command (CCDC) Aviation and Missile Center, System Simulation and Software Integration (S3I) Directorate. The program office will employ System Simulation and Software Integration Directorate (S3I) to design and develop the minimum viable Aviation solution through a series of five Capability Drops which will bring Aviation data and functionality into GCSS-Army and be independently designed, developed, and deployed.

Wave 2 provides the enhanced BI/BW capability. Base contract was awarded as a small business set aside IDIQ contract, June 2019. Option year awarded June 2020.

Wave 3 provides the APS capability. Will leverage Army Shared Service Center (ASSC) contract.

GCSS-Army also leverages the partnership with the U.S. Army Communications-Electronics Command, and supplements the design and development team with architecture and engineering support from the existing support contract.

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) EK2 / <i>GCSS-A Increment 2</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | | |
|---|---------|---|---|--------|---------|---|---|--------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|--|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | |
| Full Deployment ATP | | | | ▲ 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capability Support ATP | | | | | | | | ▲ 2 | | | | | | | | | | | | | | | | | | | | | |
| Release 2 EAVN Blueprinting/R2 SW Development | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rel 2 Testing | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rel 2 Deployment | | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Business Intelligence/Business Warehouse Blueprinting/De... | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| APS Blueprinting/Development/Testing//Deployment | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303141A / <i>Global Combat Support System</i> | Project (Number/Name) EK2 / <i>GCSS-A Increment 2</i> |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| MDA Meeting | 2 | 2016 | 2 | 2016 |
| Full Deployment ATP | 4 | 2022 | 4 | 2022 |
| Capability Support ATP | 4 | 2023 | 4 | 2023 |
| Rel 1 EAVN Blueprinting/ SW Development | 1 | 2018 | 4 | 2019 |
| Rel 1 Testing | 1 | 2018 | 2 | 2020 |
| Rel 1 Deployment | 4 | 2019 | 2 | 2021 |
| Release 2 EAVN Blueprinting/R2 SW Development | 3 | 2019 | 3 | 2022 |
| Rel 2 Testing | 1 | 2021 | 4 | 2022 |
| Rel 2 Deployment | 1 | 2021 | 4 | 2023 |
| Business Intelligence/Business Warehouse Blueprinting/Development | 1 | 2019 | 4 | 2022 |
| APS Blueprinting/Development/Testing//Deployment | 1 | 2021 | 1 | 2022 |

Note

The schedule for GCSS-Army Increment 2 is based upon the Army Acquisition Executive (AAE) decision to utilize the Government System Integrator. Schedule reflects two releases for Enterprise Aviation (Wave 1), one release for Business Intelligence/Business Warehouse (Wave 2), and one release for Army Prepositioned Stock (Wave 3).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|--|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army I BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0303142A / <i>SATCOM Ground Environment (SPACE)</i> |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 16.186 | 18.297 | 26.838 | - | 26.838 | 11.731 | 12.388 | 12.497 | 12.638 | Continuing | Continuing |
| 253: <i>Dscs-Dcs (Phase II)</i> | - | 3.931 | 7.808 | 11.902 | - | 11.902 | 4.914 | 4.921 | 4.973 | 5.029 | Continuing | Continuing |
| 456: <i>MILSATCOM System Engineering</i> | - | 12.255 | 2.920 | 1.776 | - | 1.776 | 1.765 | 2.410 | 2.465 | 2.493 | 0.000 | 26.084 |
| CO7: <i>Protected Tactical Satellite Communications</i> | - | - | 7.569 | 13.160 | - | 13.160 | 5.052 | 5.057 | 5.059 | 5.116 | 0.000 | 41.013 |

A. Mission Description and Budget Item Justification

Project 253, Dscs-Dcs (Phase II), SATCOM Ground Environment (SPACE) - A portion of this funding line is directly aligned to support the Network Army Modernization Priority.

FY 2024 Base funding in the amount of \$11.902 million develops Satellite Communication (SATCOM) ground subsystem equipment and software in support of Joint Chiefs of Staff (JCS) validated Mission Command Network and Systems requirements for the worldwide Defense Enterprise Wideband SATCOM System (DEWSS). DEWSS is composed of the Super High Frequency (SHF) Defense Satellite Communications System (DSCS) and Wideband Global SATCOM (WGS) programs, which are required to support legacy, interim and emerging communication space architectures and future force requirements. Expansion of the WGS constellation and upgrades to both DSCS and WGS are vital to support the Army's emerging power projection and rapid deployment role. DSCS and WGS provide multiple channels of tactical end-to-end connectivity and interoperability with strategic networks and national decision-makers, satisfying JCS network operations in support of the President, JCS, combatant commanders, military departments, Department of State and other government departments and agencies.

Project 456, MILSATCOM System Engineering is directly aligned to Army Network Modernization Priority.

FY 2024 Base funding in the amount of \$1.776 million - MILSATCOM System Engineering assures the tactical Army satellite communications (SATCOM) and SATCOM On-the-Move (SOTM) systems are engineered to legally and efficiently operate worldwide. MILSATCOM System Engineering shapes Joint SATCOM systems' design efforts, standards development and planning processes. MILSATCOM System Engineering represents the Army's tactical interests within Department of Defense (DoD), Commercial and International forums to ensure affordable and scalable future SATCOM capabilities for maneuver forces. These efforts are synchronized with the Space Force and DoD's plans for Protected Tactical Waveforms (PTW) on Wideband Global SATCOM (WGS), the Protected Tactical Satellite (PTS), and commercial SATCOM systems. These efforts also ensure that the Army continues to evaluate evolving technologies for the planning and designing of SATCOM solutions that reduce technical and programmatic impacts. MILSATCOM System Engineering expertise supports obtaining SATCOM modem and terminal certifications for Tactical Network systems to operate on the network, provides SATCOM spectrum management and lab support, and supports testing and integration of Assured Position Navigation and Timing (APNT) capabilities.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0303142A / <i>SATCOM Ground Environment (SPACE)</i> | |
| <p>MILSATCOM System Engineering also provides the technical and programmatic expertise to facilitate the Unified Network Capabilities and Integration (UNCI) integration mission of transport convergence and integration of N-CFT emerging solutions within the Tactical Network portfolio as part of future Capability Sets. MILSATCOM SE provides the programmatic and technical expertise to coordinate the UNCI mission to align and integrate elements of the Tactical Network portfolio in support of units such as the Expeditionary Signal Battalion (ESB) and Multi Domain Task Force (MDTF). MILSATCOM System Engineering expertise supports the evaluation and integration of commercial SATCOM (COMSATCOM) capabilities with MILSATCOM and Tactical Network systems in support of pathway diversity and other modernization efforts. MILSATCOM System Engineering supports the development of the Network Centric Waveform Technology (NCW-T) to support regional SATCOM planning and management. MILSATCOM System Engineering expertise with lab testing and analysis supports future efforts to support One Network Service Support Center and the ability to evaluate Low Probability of Intercept (LPI), Low Probability of Detection (LPD), Transmission Security (TRANSEC), and resiliency capabilities of current and emerging technologies.</p> <p>Project CO7, Protected Anti-Jam Tactical SATCOM is directly aligned to Army Network Modernization Priority.</p> <p>Project CO7, Protected Anti-Jam Tactical SATCOM funding supports continued Air Force/Army Anti-Jam Modem (A3M) development (previously referred to as Block I Large Form Factor (LFF)), contactor and government system engineering, program management and development of Army modem (previously referred to as Block II Small Form Factor (SFF)).</p> <p>Protected Anti-Jam Tactical SATCOM (Protected SATCOM) fills a critical communications gap for Anti-Jam SATCOM capability for mobile ground forces conducting expeditionary operations in electronically contested environments. It provides the ability for the Army tactical terminals to be resilient in a contested environment and protect against catastrophic loss of situational awareness and command and control during critical battle movement with Anti-Jam capabilities.</p> <p>A3M will offer tactical Army protection against interference that is either intentional or unintentional. These DoD Joint efforts are synchronized with United States Space Force (USSF) and Army for execution of Protected Tactical Waveforms (PTW) on Wideband Global SATCOM (WGS), Protected Tactical Satellites (PTS), and commercial SATCOM systems.</p> <p>Protected Tactical Anti-Jam SATCOM supports initial development, testing and certification of production representative PTW modems, incorporating Army requirements, to support continued spiral development of critical protected communications capabilities to address resiliency in jamming environments. In FY 2024, the Army begins development of a dual waveform, small form factor modem variant. The Resilient Anti-Jam Modem (RAM) (previously referred to as Block II Small Form Factor (SFF)) will provide on the move and early entry satellite terminals with adaptive, anti-jam communications for the highest levels of protected communications in multi domain operations. The Protected/Resilient SATCOM Abbreviated - Capabilities Development Document was validated and approved in June 2021.</p> <p>FY 2024 funding in the amount of \$13.160 million will support Logistics Support and Data Development, contactor and government system engineering and program management, test and certification and development of Army RAM.</p> | | |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|---|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) |
|---|---|

| B. Program Change Summary (\$ in Millions) | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> |
|---|-----------------------|-----------------------|----------------------------|---------------------------|-----------------------------|
| Previous President's Budget | 15.222 | 18.321 | 15.133 | - | 15.133 |
| Current President's Budget | 16.186 | 18.297 | 26.838 | - | 26.838 |
| Total Adjustments | 0.964 | -0.024 | 11.705 | - | 11.705 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | 0.964 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 11.705 | - | 11.705 |
| • FFRDC Transfer | - | -0.024 | - | - | - |

Change Summary Explanation

FY 2024 increase of \$11.705 million aligned to Army Network Modernization Priorities in support of the National Defense Strategy. The funding will support engineering efforts to complete the design, integration, test and development of First Article Test (FAT) units.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|---|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) 253 / Dscs-Dcs (Phase II) |
|--|---|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| 253: Dscs-Dcs (Phase II) | - | 3.931 | 7.808 | 11.902 | - | 11.902 | 4.914 | 4.921 | 4.973 | 5.029 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Project 253, Dscs-Dcs (Phase II), SATCOM Ground Environment (SPACE) supports the Army's Network Modernization Strategy Line of Effort (LOE) 1 - Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

FY 2024 Base dollars in the amount of in the amount of \$11.850 million develops Satellite Communication (SATCOM) ground subsystem equipment and software in support of Joint Chiefs of Staff (JCS) validated Mission Command Network and Systems requirements for the worldwide Defense Enterprise Wideband SATCOM System (DEWSS). DEWSS is composed of the Super High Frequency (SHF) Defense Satellite Communications System (DSCS) and Wideband Global SATCOM (WGS) programs, which are required to support legacy, interim and emerging communication space architectures and future force requirements. Expansion of the WGS constellation and upgrades to both DSCS and WGS are vital to support the Army's emerging power projection and rapid deployment role. DSCS and WGS provide multiple channels of tactical end-to-end connectivity and interoperability with strategic networks and national decision-makers, satisfying JCS network operations in support of the President, JCS, combatant commanders, military departments, Department of State and other government departments and agencies.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| Title: SATCOM Terminal Digital Intermediate Frequency Implementation Analysis | 1.299 | 4.158 | 4.151 |
| <p>Description: SATCOM Terminal Digital Intermediate Frequency (IF) implementation analysis and experimentations aimed at improving bandwidth efficiency of gateway terminals while providing an additional layer of resiliency through terminal redundancy. These analysis and experimentations include various evaluations for digital terminal components to replace current, less efficient, analog components. These analyses also include assessment of terrestrial connectivity among SATCOM terminals to enable Continuity of Operations (COOP) and failover scenarios required for resiliency.</p> <p>FY 2023 Plans: Integrate Digital IF Solutions for the Interconnect Facility (ICF) Replacement Wideband Signal Processors (WSP), COTS LAN Switches and Routers and High Speed Fiber Optics into the Prototyping, Integration, Test, Training (PITT) facility at Tobyhanna Army Depot (TYAD). Perform technical assessments and Wideband Global SATCOM (WGS) delta certification tests.</p> <p>FY 2024 Plans: Continue to integrate Digital IF Solutions for the Interconnect Facility (ICF) Replacement Wideband Signal Processors (WSP), COTS LAN Switches and Routers and High Speed Fiber Optics into the Prototyping, Integration, Test, Training (PITT) facility at Tobyhanna Army Depot (TYAD). Perform technical assessments and Wideband Global SATCOM (WGS) delta certification tests.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) 253 / Dscs-Dcs (Phase II) | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| FY 2024 funding increase supports planned lifecycle of the effort. | | | | |
| <p>Title: Electromagnetic Interference Mitigation Analysis</p> <p>Description: Continue to assess multiple interference mitigation/cancellation technologies for effectiveness in improving reliability/resiliency of strategic and tactical communications. Mature technology to software/firmware that will improve protected SATCOM modem/terminal performance in electro-magnetic interference contested environment. Technology will also improve terminal performance against adversary and friendly satellite link jamming resources.</p> <p>FY 2023 Plans: Integrate Interference Mitigation algorithms into Enterprise Digital IF Multi-carrier (EDIM) Modem.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease due to conclusion of effort in FY 2023.</p> | | 1.495 | 0.400 | - |
| <p>Title: Low Earth Orbit (LEO)/Medium Earth Orbit (MEO) Satellite Service Integration</p> <p>Description: Investigate the availability of LEO/MEO Satellite Services in the commercial market place and assess their viability for use at Department of Defense (DoD) SATCOM gateways.</p> | | 1.137 | - | - |
| <p>Title: Enterprise Digital IF Multi-carrier (EDIM) Modem</p> <p>Description: Complete integration of various commercial technologies on to a single modem platform to replace the existing almost out of life EDIM modem currently fielded at all DoD Gateways. New technologies include multi-carrier capability to assist future growth of SATCOM, Digital IF to enable resiliency and path diversity and Interference Cancellation to improve reliability of SATCOM communication links. Additionally, complete production of testing units in order to begin First Article Test and Wideband Global SATCOM (WGS) system certification.</p> <p>FY 2023 Plans: Integrate Multi-carrier capabilities, Interference Cancellation Algorithms and Digital IF technology into EDIM Modem. Initiate Non-Recurring Engineering (NRE) contract to integrate, test and certify EDIM Modem Platform.</p> <p>FY 2024 Plans: Continue Non-Recurring Engineering (NRE) efforts to integrate, test and certify the EDIM Modem Platform.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> | | - | 2.965 | 7.751 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) 253 / Dscs-Dcs (Phase II) |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Funding increased due to FY 2023 funds being non-recurring engineering efforts to develop a preliminary design. FY 2024 funds are for non-recurring engineering efforts to complete the design, integrate, test and develop First Article Test (FAT) units. FY 2024 increase is due to integration, testing and certification of the modified EDIM modem. | | | |
| Title: SBIR/STTR Transfer Description: Funding transferred in accordance with Title 15 USC §638. FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638. FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638. | - | 0.285 | - |
| Accomplishments/Planned Programs Subtotals | 3.931 | 7.808 | 11.902 |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • BB8500: Defense Enterprise Wideband Satcom Systems | 90.928 | 107.228 | 101.181 | - | 101.181 | 89.138 | 92.670 | 92.713 | 92.793 | Continuing | Continuing |

Remarks

D. Acquisition Strategy

This finances Project Manager, Integrated Enterprise Networks (PM-IEN) netcentric systems engineering, modem risk mitigation, and risk management framework support. Funding provides for SATCOM terminal upgrades, enhancement of baseband throughput capabilities, technology insertion and upgrades which improves SATCOM gateway resiliency while allowing for full utilization of Wideband Global SATCOM (WGS) capabilities. Both the Wideband SATCOM Operational Management System (WSOMS) and the Enterprise Wideband SATCOM Terminal System (EWSTS) Capability Production Documents (CPDs) contain Netcentric-Ready Key Performance Parameters (NR-KPPs) as required by CJCSI 6212.01C. Netcentric efforts are required to facilitate the migration from the current trunk-based communications systems to Internet Protocol (IP) based systems and to engineer, test and integrate IP based capabilities into WSOMS and EWSTS systems. Studies, risk mitigation, system integration and advanced demonstrations for Netcentric baseband and policy-based control will accommodate technology insertion, data sharing, remote operations, architecture efforts and use of commercial technology, thus ensuring the life of the Defense Enterprise Wideband Satellite System (DEWSS) terminal family beyond 2035 and reducing lifecycle costs and enterprise requirements on the WGS and Defense Satellite Communication System (DSCS) satellites in the future. Contracting approach for new technology is through the use of Broad Agency Announcements (BAA) and Other Transaction Authority (OTA) contracts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|---|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environm ent (SPACE) | Project (Number/Name) 253 / Dscs-Dcs (Phase II) |
|--|---|---|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| SBIR/STTR Transfer | TBD | To Be Determined : To Be Determined | - | - | | 0.285 | | - | | - | | - | 0.000 | 0.285 | - |
| Subtotal | | | - | - | | 0.285 | | - | | - | | - | 0.000 | 0.285 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| SATCOM Terminal Digital IF Implementation Analysis | MIPR | Aberdeen Proving Ground : MD | 1.885 | 1.125 | Jan 2022 | 3.206 | Jan 2023 | 3.336 | Jan 2024 | - | | 3.336 | Continuing | Continuing | Continuing |
| Electromagnetic Interference Mitigation Analysis | MIPR | Aberdeen Proving Ground : MD | 1.666 | 1.244 | Jan 2022 | 0.400 | Jan 2023 | - | | - | | - | Continuing | Continuing | Continuing |
| Low Earth Orbit/Medium Earth Orbit (LEO/MEO) | MIPR | Aberdeen Proving Ground : MD | - | 0.967 | Jan 2022 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| Enterprise Digital IF Multi-carrier (EDIM) Modem System Engineering Analysis | MIPR | ACC - Rock Island : IL | - | - | | 2.965 | Jan 2023 | 7.751 | Jan 2024 | - | | 7.751 | Continuing | Continuing | Continuing |
| Subtotal | | | 3.551 | 3.336 | | 6.571 | | 11.087 | | - | | 11.087 | Continuing | Continuing | N/A |

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| In-house Support | Allot | PdM WESS : Ft. Belvoir, VA | 0.060 | 0.045 | | 0.060 | | 0.015 | | - | | 0.015 | Continuing | Continuing | Continuing |
| Contractor Support | MIPR | ACC : Rock Island, IL | 0.601 | 0.550 | Jan 2022 | 0.892 | Jan 2023 | 0.800 | Feb 2024 | - | | 0.800 | Continuing | Continuing | Continuing |
| Subtotal | | | 0.661 | 0.595 | | 0.952 | | 0.815 | | - | | 0.815 | Continuing | Continuing | N/A |

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|---|--------------------|----------------|--|---|--|---------------------|--------------------|---|-------------------------|-------------------|---------------------------------|
| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | Date: March 2023 | | | |
| Appropriation/Budget Activity 2040 / 7 | | | | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | | | | Project (Number/Name) 253 / Dscs-Dcs (Phase II) | | | |
| | Prior Years | FY 2022 | | FY 2023 | | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
| Project Cost Totals | 4.212 | 3.931 | | 7.808 | | 11.902 | - | 11.902 | Continuing | Continuing | N/A |

Remarks

SATCOM Terminal Digital Intermediate Frequency (IF) demonstrations with multi-vendor equipment will be conducted using live satellite links between Tobyhanna Army Depot (TYAD) and Joint SATCOM Engineering Center (JSEC) at Aberdeen Proving Grounds. All components demonstrated will be at Technology Readiness Level (TRL) 6.

Electromagnetic Interference Algorithms at TRL 6 will be hosted on a stand-alone hardware platform and tested at JSEC using live satellite links. All verified algorithms and performance specifications will transition to the Enterprise Digital IF Multi-Carrier (EDIM) modem program during 4Q FY 2023.

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environm ent (SPACE) | Project (Number/Name) 253 / Dscs-Dcs (Phase II) | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|------------|---|---|---|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| SATCOM Terminal Digital Intermediate Frequency (IF) Impl... | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Electromagnetic Interference Mitigation Analysis | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Enterprise Digital IF Multi-carrier (EDIM) Modem System ... | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) 253 / Dscs-Dcs (Phase II) |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| SATCOM Terminal Digital Intermediate Frequency (IF) Implementation Analysis | 1 | 2021 | 4 | 2028 |
| Electromagnetic Interference Mitigation Analysis | 1 | 2021 | 4 | 2023 |
| Enterprise Digital IF Multi-carrier (EDIM) Modem System Engineering Analysis | 1 | 2023 | 4 | 2025 |

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | | | | Project (Number/Name) 456 / MILSATCOM System Engineering | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| 456: MILSATCOM System Engineering | - | 12.255 | 2.920 | 1.776 | - | 1.776 | 1.765 | 2.410 | 2.465 | 2.493 | 0.000 | 26.084 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Project 456, MILSATCOM System Engineering is directly aligned to the Army Network Modernization Priority.

FY 2024 Base funding in the amount of \$1.776 million - MILSATCOM System Engineering assures the tactical Army satellite communications (SATCOM) and SATCOM On-the-Move (SOTM) systems are engineered to legally and efficiently operate worldwide. MILSATCOM System Engineering shapes Joint SATCOM systems' design efforts, standards development and planning processes. MILSATCOM System Engineering represents the Army's tactical interests within Department of Defense (DoD), Commercial and International forums to ensure affordable and scalable future SATCOM capabilities for maneuver forces. These efforts are synchronized with the Space Force and DoD's plans for Protected Tactical Waveforms (PTW) on Wideband Global SATCOM (WGS), the Protected Tactical Satellite (PTS), and commercial SATCOM systems. These efforts also ensure that the Army continues to evaluate evolving technologies for the planning and designing of SATCOM solutions that reduce technical and programmatic impacts. MILSATCOM System Engineering expertise supports obtaining SATCOM modem and terminal certifications for Tactical Network systems to operate on the network, provides SATCOM spectrum management and lab support, and supports testing and integration of Assured Position Navigation and Timing (APNT) capabilities.

MILSATCOM System Engineering also provides the technical and programmatic expertise to facilitate the Unified Network Capabilities and Integration (UNCI) integration mission of transport convergence and integration of N-CFT emerging solutions within the Tactical Network portfolio as part of future Capability Sets. MILSATCOM SE provides the programmatic and technical expertise to coordinate the UNCI mission to align and integrate elements of the Tactical Network portfolio in support of units such as the Expeditionary Signal Battalion (ESB) and Multi Domain Task Force (MDTF). MILSATCOM System Engineering expertise supports the evaluation and integration of commercial SATCOM (COMSATCOM) capabilities with MILSATCOM and Tactical Network systems in support of pathway diversity and other modernization efforts. MILSATCOM System Engineering supports the development of the Network Centric Waveform Technology (NCW-T) to support regional SATCOM planning and management. MILSATCOM System Engineering expertise with lab testing and analysis supports future efforts to support One Network Service Support Center and the ability to evaluate Low Probability of Intercept (LPI), Low Probability of Detection (LPD), Transmission Security (TRANSEC), and resiliency capabilities of current and emerging technologies.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: Protected communications system engineering and WGS communications | 0.924 | 0.502 | 0.253 |
| Description: Provides systems engineering support for technology maturation, development and planning associated with joint SATCOM development efforts, and supports testing and integration of Assured Position Navigation and Timing (APNT) capabilities. | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) 456 / MILSATCOM System Engineering | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>FY 2023 Plans: Funding supports continued systems engineering and analysis for Protected Communications and WGS Communications, as well as development and technology maturation of Network Centric Waveform Tool (NCW-T).</p> <p>FY 2024 Plans: Continue to support systems engineering and analysis for Protected Communications and WGS Communications, as well as development and technology maturation of NCW-T.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to prioritization of terminal and modem certification efforts.</p> | | | | |
| <p>Title: Systems architecture and analysis support</p> <p>Description: Provides systems engineering support relating to the architecture and analysis of NCW-T and collaborative SATCOM efforts. These efforts, such as research, analysis, technical engineering and integration services for bandwidth studies and future technology insertions, impact Army use of military and commercial satellite constellations and integration of enabling technologies. Provides SATCOM spectrum management and supports Joint/DoD standards development and strategic planning.</p> <p>Provides additional programmatic support across the tactical network.</p> | | 0.815 | 1.461 | 0.510 |
| <p>FY 2023 Plans: Funding supports continued in house engineering support, contractor support, and system architecture and analysis.</p> <p>FY 2024 Plans: Continue to support in house engineering support, contractor support, and system architecture and analysis.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to prioritization of terminal and modem certification efforts.</p> | | | | |
| <p>Title: Testing and certification of critical SATCOM and SATCOM On-the-Move communication and network technologies</p> <p>Description: Provides support for testing and certification of the critical SATCOM and SATCOM On-the-Move (SOTM) communication and network technologies.</p> | | 0.252 | 0.600 | 0.761 |
| <p>FY 2023 Plans: Funding supports continued testing and certification of critical SATCOM and SOTM communication and network technologies.</p> <p>FY 2024 Plans:</p> | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) 456 / MILSATCOM System Engineering | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| Continue to support continued testing and certification of critical SATCOM and SOTM communication and network technologies. FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to prioritization of testing and certification of critical SATCOM and SOTM communication and network technologies. | | | | |
| Title: Protected Tactical Waveform (PTW) Modem Development and Testing | | 10.264 | - | - |
| Title: Unified Network Capabilities and Integration Program Management and Support Description: Provides programmatic and technical expertise in systems engineering test, evaluation, and integration in support of aligning and integrating elements of the Tactical Network Portfolio. FY 2023 Plans: Funding supports systems engineering and integration efforts in support of NCW Technology development and test as well as testing and certification of critical SATCOM and SOTM Technology. FY 2024 Plans: Continue to support systems engineering and integration efforts in support of NCW Technology development and test as well as testing and certification of critical SATCOM and SOTM Technology. FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase supports planned lifecycle of the effort. | | - | 0.250 | 0.252 |
| Title: SBIR/STTR Transfer Description: Funding transferred in accordance with Title 15 USC §638. FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638. FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638. | | - | 0.107 | - |
| Accomplishments/Planned Programs Subtotals | | 12.255 | 2.920 | 1.776 |
| C. Other Program Funding Summary (\$ in Millions) | | | | |
| N/A | | | | |
| Remarks | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) 456 / MILSATCOM System Engineering |

D. Acquisition Strategy

MILSATCOM System Engineering provides advanced systems engineering, research, development, test, and evaluation (RDTE) and integration of new and emerging technologies to optimize terminal performance and communications control. Once the technologies are mature and deemed feasible, funding and management responsibility for implementation and integration of the technology will transition to Tactical Network and related Programs of Record.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | | |
|---|------------------------|-------------------------------------|-------------|---|------------|---------|------------|------------------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|--|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | | |
| 2040 / 7 | | | | PE 0303142A / SATCOM Ground Environment (SPACE) | | | | 456 / MILSATCOM System Engineering | | | | | | | | |
| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| SBIR/STTR Transfer | TBD | TBD : TBD | - | - | | 0.107 | | - | | - | | - | 0.000 | 0.107 | - | |
| Subtotal | | | - | - | | 0.107 | | - | | - | | - | 0.000 | 0.107 | N/A | |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| Protected Communications and WGS Communications | C/FPIF | Various : APG, MD | 0.580 | 0.924 | Apr 2022 | 0.752 | Apr 2023 | 0.253 | Apr 2024 | - | | 0.253 | 0.000 | 2.509 | - | |
| Protected Tactical Waveform (PTW) Modem Development | C/IDDQ | To Be Determined : To Be Determined | 10.912 | 10.264 | Mar 2022 | - | | - | | - | | - | 0.000 | 21.176 | - | |
| Subtotal | | | 11.492 | 11.188 | | 0.752 | | 0.253 | | - | | 0.253 | 0.000 | 23.685 | N/A | |
| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| Engineering (In House) | MIPR | Various : APG, MD | 0.330 | - | | - | | - | | - | | - | 0.000 | 0.330 | - | |
| Engineering Contractor Support | C/T&M | Various : APG, MD | 1.546 | - | | - | | - | | - | | - | 0.000 | 1.546 | - | |
| System Architecture and Analysis Support | MIPR | CERDEC : APG, MD | 0.208 | 0.815 | Dec 2021 | 1.461 | Dec 2022 | 0.510 | Dec 2023 | - | | 0.510 | 0.000 | 2.994 | - | |
| Unified Network Capabilities and Integration Program Management and Support | C/T&M | Various : APG | - | - | | - | | 0.252 | Dec 2023 | - | | 0.252 | 0.000 | 0.252 | - | |
| Subtotal | | | 2.084 | 0.815 | | 1.461 | | 0.762 | | - | | 0.762 | 0.000 | 5.122 | N/A | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environm ent (SPACE) | Project (Number/Name) 456 / MILSATCOM System Engineering | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Network Centric Waveform Technology (NCWT) Development a | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NCWT Development and Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SATCOM Systems Architecture, Analysis, Testing and Certi... | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SATCOM Systems Architecture and Analysis | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SATCOM Modem and Terminal Certification | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SATCOM Modem and Terminal Certification | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) 456 / MILSATCOM System Engineering |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Network Centric Waveform Technology (NCWT) Development and Testing | 1 | 2021 | 4 | 2026 |
| SATCOM Systems Architecture, Analysis, Testing and Certification | 1 | 2021 | 4 | 2028 |
| SATCOM Modem and Terminal Certification | 1 | 2022 | 1 | 2029 |

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) CO7 / Protected Tactical Satellite Communications |
|--|---|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| CO7: Protected Tactical Satellite Communications | - | - | 7.569 | 13.160 | - | 13.160 | 5.052 | 5.057 | 5.059 | 5.116 | 0.000 | 41.013 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Network Modernization Priority.

Protected Anti-Jam Tactical SATCOM (Protected SATCOM) fills a critical communications gap for Anti-Jam SATCOM capability for mobile ground forces conducting expeditionary operations in electronically contested environments. It provides the ability for the Army tactical terminals to be resilient in a contested environment and protect against catastrophic loss of situational awareness and command and control during critical battle movement with Anti-Jam capabilities.

Air Force/Army Anti-Jam Modem (A3M) will offer tactical Army protection against interference that is either intentional or unintentional. These DoD Joint efforts are synchronized with United States Space Force (USSF) and Army for execution of Protected Tactical Waveforms (PTW) on Wideband Global SATCOM (WGS), Protected Tactical Satellites (PTS), and commercial SATCOM systems.

Protected Tactical Anti-Jam SATCOM supports initial development, testing and certification of production representative PTW modems, incorporating Army requirements, to support continued spiral development of critical protected communications capabilities to address resiliency in jamming environments. In FY 2024, the Army begins development of a dual waveform, small form factor modem variant. The Resilient Anti-Jam Modem (RAM) (previously referred to as Block II Small Form Factor (SFF)) will provide on the move and early entry satellite terminals with adaptive, anti-jam communications for the highest levels of protected communications in multi domain operations. The Protected/Resilient SATCOM Abbreviated - Capabilities Development Document was validated and approved in June 2021.

FY 2024 funding in the amount of \$13.160 million will support Logistics Support and Data Development, contractor and government system engineering and program management, test and certification and development of Army RAM.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| Title: PTW Block I Modem Development | - | 5.248 | - |
| Description: PTW Development of Air Force/Army Anti-Jam Modem (A3M) (Block I) supports development and engineering of Army requirements for the PTW modems that will be utilized for protected tactical communications. | | | |
| FY 2023 Plans: Funding supports system test and evaluation and development of Block I Modems. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) CO7 I Protected Tactical Satellite Communications | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| Funding decreased due to completion of A3M Block I development and the program shifting to support the Resilient Anti-Jam Modem (RAM). | | | | |
| <p>Title: Logistics Support and Data Development</p> <p>Description: Funding supports the total documentation (training, tech manuals) and logistics support package. The efforts associated with the design, development, and production of prototype training equipment, and the execution of training services. Effort also transforms data into government format, including technical data providing instructions for installation, operation, maintenance, training, and support, all to be formatted into a technical manual.</p> <p>FY 2023 Plans: Funding supports development of training materials for Block I/II modems.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding decreased due to completion of logistics support and data development for A3M.</p> | | - | 0.208 | - |
| <p>Title: Government System Engineering and Program Management Support (SEPM)</p> <p>Description: Funding supports Government System Engineering and Program Management (SEPM) which includes programmatic personnel, and other related administrative costs. Government Program Management consists of matrix personnel labor and travel requirements. This includes all required program oversight, system engineering and technical control, risk management, and fielding support.</p> <p>FY 2023 Plans: Funding support SEPM efforts related to Block I/II modem development.</p> <p>FY 2024 Plans: Funding supports programmatic activities related to completing A3M development and initiating RAM development. This includes Army network systems architecture and analysis.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased as the Army ramps up the development of the RAM, which requires additional personnel due to technical complexity associated with miniaturization of the Army modem.</p> | | - | 0.359 | 1.004 |
| <p>Title: Contractor System Engineering and Program Management Support (SEPM)</p> <p>Description: Funding supports Contractor System Engineering and Program Management (SEPM) which includes programmatic personnel (program analyst, budget analyst, engineer), and other related administrative costs.</p> <p>FY 2023 Plans:</p> | | - | 0.454 | 1.457 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) CO7 / Protected Tactical Satellite Communications | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| <p>Funding supports Contractor System Engineering and Program Management (SEPM) which includes programmatic personnel (program analyst, budget analyst, engineer, etc.), travel, and other related administrative costs.</p> <p>FY 2024 Plans: Funding supports programmatic activities related to completing A3M Block I modem development and initiating the RAM development. This includes Army network systems architecture and analysis.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased as the Army ramps up development of the RAM, which requires additional personnel due to technical complexity associated with miniaturization of the Army modem.</p> | | | | |
| <p>Title: Test and Certification</p> <p>Description: Funding for Government-led labor for testing and certification.</p> <p>FY 2023 Plans: FY 2023 funding provides support for Government-led labor for testing and certification efforts.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: No FY 2024 funding due to completion of test and certification of the A3M in FY 2023.</p> | | - | 1.024 | - |
| <p>Title: Resilient Anti-Jam Modem Development (RAM)</p> <p>Description: FY 2024 funding supports development of a small form factor Resilient Anti-Jam Modem (RAM). This activity supports engineering of Army requirements for PTW modems in protected tactical communications. This will be an Army led activity.</p> <p>FY 2024 Plans: The Army will begin development of a small form factor Resilient Anti-Jam Modem (RAM).</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 Funding increase due to development of a small form factor RAM for Protected SATCOM.</p> | | - | - | 10.699 |
| <p>Title: SBIR/STTR Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC §638.</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p> | | - | 0.276 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) CO7 I Protected Tactical Satellite Communications |
|--|---|---|

| | | | |
|---|----------------|----------------|----------------|
| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
| Funding transferred in accordance with Title 15 USC §638. | | | |
| Accomplishments/Planned Programs Subtotals | - | 7.569 | 13.160 |

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

| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|--|---------|---------|-----------------|----------------|------------------|---------|---------|---------|---------|---------------------|------------|
| • B34002: Protected Anti Jam Tactical SATCOM | - | 5.853 | 19.122 | - | 19.122 | 36.985 | 37.133 | 37.150 | 37.182 | 0.000 | 173.425 |

Remarks
Production to support procurement and fielding of A3Ms. In FY 2023, Army procured 63 modems and will procure 297 modems in FY 2024.

D. Acquisition Strategy
The Protected Anti-Jam Tactical SATCOM (Protected SATCOM) is a Joint effort with United States Space Force (USSF) for development and consists of A3M Block I and Resilient Anti-Jam Modem (RAM) (previously known as Block II). The A3M Block I modem leverages the USSF Acquisition Strategy (AS), and Memorandum of Agreement (MOA) signed 14 June 2019 with Space Force for collaborative modem development and cost sharing for the A3M Block I modem. The Protected SATCOM Acquisition Strategy for Resilient Anti-Jam Modem (RAM) development will leverage successfully tested technology from the A3M (Block I) effort and is Army only requirement. RAM is designed to provide resilient and anti-jam capability for Army SATCOM terminals and will coordinate modem development with Army tactical terminal program offices. The program will leverage an existing IDIQ contract established by USSF for the development of A3M and RAM.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environm ent (SPACE) | Project (Number/Name) CO7 I Protected Tactical Satellite Communications |
|--|---|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Government System Engineering and Program Management | MIPR | Various : APG | - | - | | 0.359 | Dec 2022 | 1.004 | Dec 2023 | - | | 1.004 | 0.000 | 1.363 | - |
| Contractor Systems Engineering and Program Support | C/T&M | Various : APG | - | - | | 0.454 | Dec 2022 | 1.457 | Dec 2023 | - | | 1.457 | 0.000 | 1.911 | - |
| SBIR/STTR Transfer | TBD | TBD : TBD | - | - | | 0.276 | | - | | - | | - | 0.000 | 0.276 | - |
| Subtotal | | | - | - | | 1.089 | | 2.461 | | - | | 2.461 | 0.000 | 3.550 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Logistics Support and Data Development | MIPR | various : APG | - | - | | 0.208 | Dec 2022 | - | | - | | - | 0.000 | 0.208 | - |
| PTW Development of Block I Modems | C/FPIF | L3 Harris : Salt Lake City, Utah, Camden, NJ | - | - | | 5.248 | Oct 2022 | - | | - | | - | 0.000 | 5.248 | - |
| Army Modem Development | C/FPIF | L3 Harris : Salt Lake City, Utah, Camden, NJ | - | - | | - | | 10.699 | Dec 2023 | - | | 10.699 | 0.000 | 10.699 | - |
| Subtotal | | | - | - | | 5.456 | | 10.699 | | - | | 10.699 | 0.000 | 16.155 | N/A |

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Test and Certification | MIPR | JSEC : APG, MD | - | - | | 1.024 | Nov 2022 | - | | - | | - | 0.000 | 1.024 | - |
| Subtotal | | | - | - | | 1.024 | | - | | - | | - | 0.000 | 1.024 | N/A |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) CO7 / Protected Tactical Satellite Communications | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--------------------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| PTW Block I Modem Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test and Certification | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Resilient Anti-Jam Modem Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0303142A / SATCOM Ground Environment (SPACE) | Project (Number/Name) CO7 / Protected Tactical Satellite Communications |

Schedule Details

| Events | Start | | End | |
|--------------------------------------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| PTW Block I Modem Development | 2 | 2020 | 4 | 2023 |
| Test and Certification | 1 | 2023 | 4 | 2023 |
| Resilient Anti-Jam Modem Development | 1 | 2024 | 4 | 2029 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | | | | | R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i> | | | | | | | |
|---|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| Total Program Element | - | 5.430 | 9.926 | 9.456 | - | 9.456 | 5.835 | 1.712 | 1.731 | 1.750 | 0.000 | 35.840 |
| EF4: <i>Integrated Broadcast System</i> | - | 5.430 | 9.926 | 9.456 | - | 9.456 | 5.835 | 1.712 | 1.731 | 1.750 | 0.000 | 35.840 |

A. Mission Description and Budget Item Justification

The Joint Program Office (JPO) for Integrated Broadcast Service (IBS) Terminals supports the Joint Services and the Special Operations Command (SOCOM). The JPO is responsible for coordinating modernization and sustainment of IBS terminals compatible with the UHF SATCOM IBS broadcasts in support of Air and Missile Defense, Long Range Precision Fires, Soldier Lethality, and Network Command, Control, Communications and Intelligence Cross Functional Teams and Tactical Intelligence Targeting Access Node. The IBS transmits worldwide time-sensitive tactical and strategic intelligence and targeting data to all echelons of Joint Service operational users. The Joint Tactical Terminal (JTT) is the official IBS system and ensures continued IBS interoperability to a variety of tactical producers and consumers across the Joint Services. The transmit/receive-capable JTT systems currently consist of the JTT-Senior and JTT-IBS configurations. The JPO is executing updates to the JTT terminal to incorporate Mobile User Objective System (MUOS)-Wideband Code Division Multiple Access (WCDMA) elements based on modernization requirements.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 5.430 | 9.926 | 9.655 | - | 9.655 |
| Current President's Budget | 5.430 | 9.926 | 9.456 | - | 9.456 |
| Total Adjustments | 0.000 | 0.000 | -0.199 | - | -0.199 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -0.199 | - | -0.199 |

Change Summary Explanation

Decreased funding to support higher Army priorities.

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i> | | | | Project (Number/Name) EF4 / <i>Integrated Broadcast System</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| EF4: <i>Integrated Broadcast System</i> | - | 5.430 | 9.926 | 9.456 | - | 9.456 | 5.835 | 1.712 | 1.731 | 1.750 | 0.000 | 35.840 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Joint Program Office (JPO) for Integrated Broadcast Service (IBS) Terminals supports the Joint Services and the Special Operations Command (SOCOM). The JPO is responsible for coordinating modernization and sustainment of IBS terminals compatible with the UHF SATCOM IBS broadcasts in support of Air and Missile Defense, Long Range Precision Fires, Soldier Lethality, and Network Command, Control, Communications and Intelligence Cross Functional Teams and Tactical Intelligence Targeting Access Node. The IBS transmits worldwide time-sensitive tactical and strategic intelligence and targeting data to all echelons of Joint Service operational users. The Joint Tactical Terminal (JTT) is the official IBS system and ensures continued IBS interoperability to a variety of tactical producers and consumers across the Joint Services. The transmit/receive-capable JTT systems currently consist of the JTT-Senior and JTT-IBS configurations. The JPO is executing updates to JTT systems to incorporate Mobile User Objective System-Wideband Code Division Multiple Access (WCDMA) based on modernization requirements. The IBS network uses Type-1 encryption, Common Interactive Broadcast (CIB), and Common Message Format (CMF).

FY 2024 RDTE Dollars in the amount of \$9.456M will be used for Vendor terminal software development and porting, vendor testing and evaluation, independent testing, integration and certification by government and contracting agencies (JITC, NSA, Navy, General Dynamics) in support of IBS and MUOS modernization efforts.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Program Management | - | - | 0.617 |
| Description: Management Support | | | |
| FY 2024 Plans: Managerial oversight of ongoing JTT-NG activities, to include testing and certification, validated production and ordering, to ensure adherence to schedule, cost and performance. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Program Management line item is established in FY24 to provide greater fidelity and alignment with cost categories. | | | |
| Title: Test and Certification | - | - | 1.626 |
| Description: Engineering and Testing Support | | | |
| FY 2024 Plans: | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i> | Project (Number/Name) EF4 / <i>Integrated Broadcast System</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| Will continue engineering and testing support to obtain operational certification from external agencies to include JITC, Navy SSC PAC, and NSA FY 2023 to FY 2024 Increase/Decrease Statement: Test and Certification line item is established in FY24 to provide greater fidelity and alignment with cost categories. | | | | |
| Title: Support Costs and Management Services Description: Engineering and Testing support FY 2023 Plans: Will continue engineering and testing support to obtain operational certification from external agencies to include JITC, Navy SSC and PAC. FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 decrease due to the creation of Program Management and Test and Certification line items in an effort to provide greater fidelity and alignment with cost categories. | | 0.500 | 2.501 | - |
| Title: Modernization Efforts Description: Joint Tactical Terminal (JTT) and Integrated Broadcast Services (IBS) modernization efforts. FY 2023 Plans: Funds are required to continue Joint Tactical Terminal (JTT) and Integrated Broadcast Services (IBS) modernization efforts to include design reviews, MUOS SW development and porting, SW prototyping, integration and testing, SW configuration management, IBS-LEO/IBS-Alt path upgrades and support to MUOS testing, MIL-STD compliance & certification. FY 2024 Plans: Funds are required to continue Joint Tactical Terminal (JTT) and Integrated Broadcast Services (IBS) modernization efforts to include design reviews, MUOS SW development and porting, SW prototyping, integration and testing, SW configuration management, IBS-LEO/IBS-Alt path upgrades and support to MUOS testing, MIL-STD compliance & certification. FY 2023 to FY 2024 Increase/Decrease Statement: FY24 level of effort anticipated to remain stable. | | 4.930 | 7.425 | 7.213 |
| Accomplishments/Planned Programs Subtotals | | 5.430 | 9.926 | 9.456 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i> | Project (Number/Name) EF4 / <i>Integrated Broadcast System</i> |

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

| Line Item | FY 2022 | FY 2023 | FY 2024 | FY 2024 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To | Total Cost |
|-----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|------------|
| | | | Base | OCO | Total | | | | | Complete | |
| • V29600: <i>JTT/CIBS-M</i> | 5.463 | 2.352 | 8.543 | - | 8.543 | 9.437 | 0.500 | 0.500 | 0.501 | 0.000 | 27.296 |

Remarks

FY 2024 Base procurement dollars in the amount of \$8.543 million supports transition to organic sustainment, contractor engineering, logistics support and fielding support documentation for all terminals.

D. Acquisition Strategy

The Integrated Broadcast Service (IBS) was designed to consolidate legacy broadcasts into an interoperable set of broadcasts that can carry threat warning and situational data to both users and producers. The requirement for IBS is documented in the Integrated SIGINT Information Mission Needs Statement (MNS) validated by the Joint Requirements Oversight Council (JROC) Memo (JROCM) 115-95 on 15 September 1995. The JTT program is an effort to provide common tactical terminals capable of receiving and transmitting into the IBS UHF broadcasts. To support IBS architecture modernization efforts, JTT-NG will incorporate MUOS and needed IBS upgrades into the software baseline in order to keep pace with evolving SATCOM requirements, IBS operational needs, and obsolescence. Additional requirements from the IBS Executive Agent will include enhancements to software and firmware to help mitigate from legacy to updated SATCOM constellations, also referred to as Block 2. To mitigate transition to the new architecture, the IBS-EA requires enhancing the IBS-A broadcast to modify the modulation, COMSEC, waveform, and support for Low Earth Orbiting (LEO) SATCOM integration in JTT-IBS and JTT-NG Block 1.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i> | Project (Number/Name) EF4 / <i>Integrated Broadcast System</i> |
|--|---|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Project Management Support | Allot | PM IS&A : APG, MD; Fort Huachuca, AZ | 0.075 | - | | - | | 0.617 | Nov 2023 | - | | 0.617 | Continuing | Continuing | - |
| Subtotal | | | 0.075 | - | | - | | 0.617 | | - | | 0.617 | Continuing | Continuing | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|-----------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| IBS Modernization | SS/CPIF | DRS; Dayton, OH : DRS; Dayton, OH | 0.448 | 4.930 | Jan 2022 | - | | 7.213 | Feb 2024 | - | | 7.213 | 0.000 | 12.591 | - |
| Subtotal | | | 0.448 | 4.930 | | - | | 7.213 | | - | | 7.213 | 0.000 | 12.591 | N/A |

| Support (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------|------------------------|--------------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Project Management Support | Allot | PM IS&A : APG, MD; Fort Huachuca, AZ | 0.075 | - | | 0.575 | Nov 2022 | - | | - | | - | 0.000 | 0.650 | - |
| Subtotal | | | 0.075 | - | | 0.575 | | - | | - | | - | 0.000 | 0.650 | N/A |

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| IBS Modernization | MIPR | DRS; Dayton, OH : DRS; Dayton, OH | - | - | | 7.425 | Feb 2023 | - | | - | | - | 0.000 | 7.425 | - |
| Integration and Testing of JTT fleet Modernization | MIPR | JITC : Fort Huachuca, AZ; APG,MD, SSC PAC, GD-Scottsdale | 1.470 | 0.500 | Jun 2022 | 1.926 | Jan 2023 | 1.626 | Jan 2024 | - | | 1.626 | 0.000 | 5.522 | - |
| Subtotal | | | 1.470 | 0.500 | | 9.351 | | 1.626 | | - | | 1.626 | 0.000 | 12.947 | N/A |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i> | Project (Number/Name) EF4 / <i>Integrated Broadcast System</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Next Generation IBS Terminals Integration and Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Next Gen: JITC Testing and Certification | | | | | ▲ 2 | | | | | | | | | | | | | | | | | | | | | | | |
| IBS Modernization Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IBS Modernization Contract Award | | | | | ▲ 1 | | | | | | | | | | | | | | | | | | | | | | | |
| IBS Modernization Testing and Certification | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Modernization SW Block Delivery | | | | | | | | | | | | | | | | | ▲ 3 | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305179A / <i>Integrated Broadcast Service (IBS)</i> | Project (Number/Name) EF4 / <i>Integrated Broadcast System</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Next Generation IBS Terminals Integration and Test | 2 | 2020 | 4 | 2025 |
| Next Gen: JITC Testing and Certification | 1 | 2023 | 1 | 2023 |
| IBS Modernization Development | 4 | 2022 | 4 | 2025 |
| IBS Modernization Contract Award | 4 | 2022 | 4 | 2022 |
| IBS Modernization Testing and Certification | 1 | 2023 | 4 | 2025 |
| Modernization SW Block Delivery | 4 | 2025 | 4 | 2025 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | | | | | R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i> | | | | | | | |
|---|-------------|---------|---------|--------------|--|---------------|---------|---------|---------|---------|------------------|------------|
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| Total Program Element | 0.000 | 8.410 | 4.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 12.910 |
| 11A: <i>Advanced Payload Develop & Spt</i> | - | 8.410 | 4.500 | - | - | - | - | - | - | - | 0.000 | 12.910 |

A. Mission Description and Budget Item Justification

Project 11A Advanced Payload Develop & Spt: The Advanced Payloads Development project is a shared funding line between multiple payload programs. These payload programs support the Army's transformation by developing Reconnaissance, Surveillance and Target Acquisition (RSTA) and Intelligence, Surveillance and Reconnaissance (ISR) payload systems for Brigade Combat Teams, Divisions, and Corps Unmanned Aircraft Systems (UAS). This is in accordance with Headquarters Department of the Army (HQDA) and Training and Doctrine Command (TRADOC) UAS priorities. Additionally, this Program Element (PE) supports Future Advanced Payloads for Army UAS systems.

Common Sensor Payload (CSP) - Electro Optical / Infrared / Laser Designator (EO/IR/LD) provides High Definition (HD) Full Motion Video (FMV) in both the Electro Optical and Mid Wave IR spectrums with day/night capability to collect and display continuous imagery and the ability to designate targets of interest for attack by laser guided precision weapons. It is the EO/IR/LD sensor for the Gray Eagle UAS which supports force applications, battlespace awareness, force protection, and net-centric operations across the battlefield to provide wide area, near real time RSTA capabilities. Current product improvements continue to focus on the development and implementation of the Target Location Accuracy (TLA) capabilities that directly support emerging requirements of the Army's Current and Future Force.

0305204A 11A has no Fiscal Year (FY) 2024 funding request.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 8.410 | 4.500 | 0.000 | - | 0.000 |
| Current President's Budget | 8.410 | 4.500 | 0.000 | - | 0.000 |
| Total Adjustments | 0.000 | 0.000 | 0.000 | - | 0.000 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i> | | | | Project (Number/Name) 11A / <i>Advanced Payload Develop & Spt</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| 11A: <i>Advanced Payload Develop & Spt</i> | - | 8.410 | 4.500 | - | - | - | - | - | - | - | 0.000 | 12.910 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Advanced Payloads Development project is a shared funding line between multiple payload programs. These payload programs support the Army's transformation by developing Reconnaissance, Surveillance and Target Acquisition (RSTA) and Intelligence, Surveillance and Reconnaissance (ISR) payload systems for Brigade Combat Teams, Divisions, and Corps Unmanned Aircraft Systems (UAS). This is in accordance with Headquarters Department of the Army (HQDA) and Training and Doctrine Command (TRADOC) UAS priorities. Additionally, this Program Element (PE) supports Future Advanced Payloads for Army UAS systems.

Common Sensor Payload (CSP) - Acquisition Category (ACAT) III - Electro Optical / Infrared / Laser Designator (EO/IR/LD) provides Standard Definition (SD) or High Definition (HD) Full Motion Video (FMV) in both the Electro Optical and Mid Wave IR spectrums. These systems provide day/night capability to collect and display continuous imagery and the ability to designate targets of interest for attack by laser guided precision weapons. It is the EO/IR/LD sensor for the Gray Eagle UAS which supports intelligence gathering, force applications, battlespace awareness, force protection, and net-centric operations across the battlefield to provide wide area, near real time RSTA capabilities.

0305204A 11A has no Fiscal Year (FY) 2024 funding request.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: CSP Increased Usability and Lethality | 8.410 | 4.500 | - |
| Description: Software and Hardware developments to increase lethality and usability of the CSP while reducing cognitive burden on the Warfighter. | | | |
| FY 2023 Plans: Funds the completion of testing the Target Location Accuracy (TLA) upgrade to the CSP. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Decrease due to no FY 2024 funding request. | | | |
| Accomplishments/Planned Programs Subtotals | 8.410 | 4.500 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i> | Project (Number/Name) 11A / <i>Advanced Payload Develop & Spt</i> |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2024</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> | <u>Total Cost</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-------------------|
| | | | <u>Base</u> | <u>OCO</u> | <u>Total</u> | | | | | <u>Complete</u> | |
| • A01005: <i>CSP FMV</i> | - | 72.700 | 13.650 | - | 13.650 | - | - | - | - | 0.000 | 86.350 |

Remarks

D. Acquisition Strategy

The Enhanced Electro-Optical (EO)/Infrared (IR) Capability Production Document, approved 19 December 2016, defines additional Key Performance Parameter (KPP) requirements for the Full Motion Video (FMV) sensor on the Gray Eagle platform. The first KPP increases detection, recognition, and identification requirements which can only be met with the High Definition (HD) variation of the Common Sensor Payload (CSP). Currently, units are being fielded with HD CSPs, with additional HD CSPs in production and retrofit. The second KPP requirement is for the CSP to be a metric sensor providing rapid and enhanced Target Location Accuracy (TLA). A five (5) year follow-on production and system support contract was awarded in 2019 for integration, test, upgrade, and sustainment of these enhanced capabilities. The FY 2023 acquisition strategy for CSP includes the completion of testing supporting CSP-TLA development

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | | | | | | Date: March 2023 | | | | |
|--|------------------------|--------------------------------------|-------------|---|------------|---------|------------|--------------------------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|--|
| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | Project (Number/Name) | | | | | | | | |
| 2040 / 7 | | | | PE 0305204A / Tactical Unmanned Aerial Vehicles | | | | 11A / Advanced Payload Develop & Spt | | | | | | | | |
| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| CSP Program Management | MIPR | PM EOIR : Fort Belvoir, VA | 6.595 | 1.761 | Feb 2022 | 0.290 | Dec 2022 | - | | - | | - | 0.000 | 8.646 | - | |
| Subtotal | | | 6.595 | 1.761 | | 0.290 | | - | | - | | - | 0.000 | 8.646 | N/A | |
| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| CSP HW/SW Improvements Reduce Cognitive Burden | MIPR | Night Vision Labs : Fort Belvoir, VA | 4.590 | - | | - | | - | | - | | - | 0.000 | 4.590 | - | |
| CSP Target Location Accuracy (TLA) | SS/CPFF | Raytheon : McKinney, TX | 35.508 | 0.025 | Feb 2022 | - | | - | | - | | - | 0.000 | 35.533 | - | |
| CSP TLA Integration | MIPR | Various : Various | 11.101 | 0.631 | Apr 2022 | - | | - | | - | | - | 0.000 | 11.732 | - | |
| Training Development | TBD | i3 : Huntsville, AL | - | 0.878 | Apr 2022 | 0.640 | Apr 2023 | - | | - | | - | 0.000 | 1.518 | - | |
| Subtotal | | | 51.199 | 1.534 | | 0.640 | | - | | - | | - | 0.000 | 53.373 | N/A | |
| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract | |
| CSP Testing (TLA) | MIPR | Various : Various | - | 0.583 | Apr 2022 | 3.570 | Nov 2022 | - | | - | | - | 0.000 | 4.153 | - | |
| CSP Qual Testing (TLA) | SS/CPFF | Raytheon : McKinney, TX | 5.201 | - | | - | | - | | - | | - | 0.000 | 5.201 | - | |
| CSP TLA NGA Validation | SS/TBD | General Atomics : Poway, CA | - | 4.532 | Aug 2022 | - | | - | | - | | - | 0.000 | 4.532 | - | |
| Subtotal | | | 5.201 | 5.115 | | 3.570 | | - | | - | | - | 0.000 | 13.886 | N/A | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i> | Project (Number/Name) 11A / <i>Advanced Payload Develop & Spt</i> |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|------------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| CSP HD (EO/IR/LD) Production | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP HD Production | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP HD Retrofit (Proc) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP HD Retrofit | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA Integration | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA Integration | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA NGA Validation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA NGA Validation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA Production Decision | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA Production Decision | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA Procurement | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CSP TLA Procurement | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305204A / <i>Tactical Unmanned Aerial Vehicles</i> | Project (Number/Name) 11A / <i>Advanced Payload Develop & Spt</i> |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| CSP HD (EO/IR/LD) Production | 2 | 2013 | 4 | 2022 |
| CSP HD Retrofit (Proc) | 4 | 2013 | 4 | 2022 |
| CSP HW/SW Improvements Reduce Cognitive Burden Development | 1 | 2016 | 4 | 2021 |
| CSP HW/SW Improvements Reduce Cognitive Burden Testing / Integration | 3 | 2017 | 4 | 2020 |
| CSP TLA Development | 4 | 2018 | 4 | 2022 |
| CSP TLA PDR/CDR | 1 | 2020 | 1 | 2020 |
| CSP TLA Testing | 1 | 2022 | 3 | 2023 |
| CSP TLA Integration | 3 | 2023 | 1 | 2024 |
| CSP TLA NGA Validation | 2 | 2024 | 3 | 2024 |
| CSP TLA Production Decision | 4 | 2024 | 4 | 2024 |
| CSP TLA Procurement | 4 | 2024 | 4 | 2026 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|--|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0305206A / <i>Airborne Reconnaissance Systems</i> |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | 0.000 | 11.782 | 17.165 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 28.947 |
| EH2: <i>EMARSS ADV DEV</i> | - | 1.834 | 2.096 | - | - | - | - | - | - | - | 0.000 | 3.930 |
| EH3: <i>EMARSS Payloads ADV DEV</i> | - | 5.916 | 15.069 | - | - | - | - | - | - | - | 0.000 | 20.985 |
| EH5: <i>ARL Payloads ADV DEV</i> | - | 0.017 | - | - | - | - | - | - | - | - | 0.000 | 0.017 |
| EH7: <i>Guardrail Common Sensor (GRCS) Payloads</i> | - | 4.015 | - | - | - | - | - | - | - | - | 0.000 | 4.015 |

A. Mission Description and Budget Item Justification

Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS) will be divested by Fiscal Year (FY) 2025. EMARSS is C-12 based, direct support, manned airborne intelligence collection, processing, and targeting support system. It provides a persistent capability to detect, locate, classify/identify, and track surface targets with a high degree of timeliness and accuracy. EMARSS is assigned to the United States (U.S.) Army Intelligence and Security Command (INSCOM) Aerial Exploitation Battalions, providing Aerial Intelligence, Surveillance and Reconnaissance support to combatant commanders. EMARSS is also assigned to the United States Army Training and Doctrine Command (TRADOC) in support of training at the US Army Intelligence Center of Excellence (USAICoE). The Army Acquisition Objective for EMARSS is 36 systems, with an Army Procurement Objective of 24, to include the following variants: eight (8) EMARSS-G (Geo-INT); four (4) EMARSS-V (Vehicle and Dismount Exploitation Radar, VaDER); eight (8) EMARSS-M (Multi-INT); and four (4) EMARSS-S (SIGINT). Budget Item Justification is addressed in each Project.

Airborne Reconnaissance Low - Enhanced (ARL-E) was terminated in FY 2022.

The Guardrail Common Sensor (GRCS) will be divested by FY 2025. The RC-12X GRCS is a fixed-wing, airborne COMINT and Electronic Intelligence (ELINT) collection and precision targeting location system. GRCS provides a persistent capability to detect, locate and classify/identify high value targets with a relevant degree of timeliness and accuracy. GRCS is assigned to two (2) U.S. Army INSCOM Aerial Exploitation Battalions providing AISR support to combatant commanders. The Army's Acquisition Objective/Army's Procurement Objective is 19 RC-12X; seven (7) fielded to 3rd Military Intelligence Battalion (MI BN); and seven (7) fielded to the 204th MI BN, and five (5) trainers within TRADOC and INSCOM. Budget Item Justification is addressed in each Project.

Research Development Technology & Evaluation (RDT&E) and procurement funding currently planned will address obsolescence issues for critical SIGINT and Electronic Intelligence (ELINT) capabilities on the GRCS platform. These investments ensure GRCS AISR support in the A2AD environment is not impacted, which would prevent critical intelligence collection at large standoff which is needed to address long range targeting of peer threats and maintain system relevancy.

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0305206A / <i>Airborne Reconnaissance Systems</i> |
|---|--|

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 24.460 | 17.165 | 20.368 | - | 20.368 |
| Current President's Budget | 11.782 | 17.165 | 0.000 | - | 0.000 |
| Total Adjustments | -12.678 | 0.000 | -20.368 | - | -20.368 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -12.678 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -20.368 | - | -20.368 |

Change Summary Explanation

Fiscal Year (FY) 2024 funding decrease reflects the ARL-E program termination and Army decision to no longer invest in legacy aircraft.

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | | | | Project (Number/Name) EH2 / EMARSS ADV DEV | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| EH2: EMARSS ADV DEV | - | 1.834 | 2.096 | - | - | - | - | - | - | - | 0.000 | 3.930 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

Note

Project EH2 has no budget request for Fiscal Year (FY) 2024. FY 2023 is the last year of funding for this effort due to divestiture.

A. Mission Description and Budget Item Justification

The Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS) is the Army's newest generation C-12 based, direct support, manned airborne intelligence collection, processing, and targeting support system. It provides a persistent capability to detect, locate, classify/identify, and track surface targets with a high degree of timeliness and accuracy. EMARSS is assigned to the United States (U.S.) Army INSCOM Aerial Exploitation Battalions, providing Aerial Intelligence, Surveillance and Reconnaissance support to combatant commanders. EMARSS is also assigned to the United States Army Training and Doctrine Command (TRADOC) in support of training at the US Army Intelligence Center of Excellence (USAICoE). The Army Acquisition Objective for EMARSS is 36 systems, with an Army Procurement Objective of 24, to include the following variants: eight (8) EMARSS-G (Geo-INT); four (4) EMARSS-V (Vehicle and Dismount Exploitation Radar, VaDER); eight (8) EMARSS-M (Multi-INT); and four (4) EMARSS-S (SIGINT).

The FY23 funding line of \$2.096 million supports NRE, development of TC, testing, integration of Modifications in Service of current or future EMARSS AISR systems. Funding provides for the integration of Department of Defense (DoD) mandated safety equipment to meet current and evolving International Standards and future integration efforts supporting A-ISR modernization in the Multi-Domain Operations (MDO) environment. It also enhances aircraft communications, navigations and surveillance (CNS); aircraft survivability equipment (ASE) to include integration of Air Launched Effects onto Army fixed wing platforms; integration of AISR mission equipment package (MEP); as well as solving obsolescence issues and increasing commonality across EMARSS aircraft.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| Title: Non-Recurring Engineering | 1.834 | 2.096 | - |
| Description: This funding line supports non-recurring engineering (NRE), development of type certificates (TC), testing, integration of Modifications in Service of current or future EMARSS Army Aerial, Intelligence, Surveillance and Reconnaissance (AISR) systems. Funding provides for the integration of Department of Defense (DoD) mandated safety equipment to meet current and evolving International Standards. It also enhances aircraft communications, navigations and surveillance (CNS); aircraft survivability equipment (ASE) to include integration of Air Launched Effects onto Army fixed wing platforms; integration of AISR mission equipment package (MEP); as well as solving obsolescence issues and increasing commonality across EMARSS aircraft. | | | |
| FY 2023 Plans: | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH2 / EMARSS ADV DEV |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|----------------|----------------|----------------|
| <p>This funding line supports NRE, development of TC, testing, studies, integration of Modifications in Service of current or future EMARSS Army Aerial, Intelligence, Surveillance and Reconnaissance (AISR) systems. Funding provides for the integration of Department of Defense (DoD) mandated safety equipment to meet current and evolving International Standards and future integration efforts supporting A-ISR modernization in the Multi-Domain Operations (MDO) environment. It also enhances aircraft communications, navigations and surveillance (CNS); aircraft survivability equipment (ASE) to include integration of Air Launched Effects onto Army fixed wing platforms; integration of AISR mission equipment package (MEP); design and integration of Modular Open System Architecture (MOSA) onto Army fixed wing platforms as well as solving obsolescence issues and increasing commonality across EMARSS aircraft.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease in FY24 funding due to Army decision to no longer invest in legacy aircraft.</p> | | | |
| Accomplishments/Planned Programs Subtotals | 1.834 | 2.096 | - |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • A02112: EMARSS SEMA MODS | 1.568 | 1.591 | 0.000 | - | 0.000 | - | - | - | - | Continuing | Continuing |
| • AZ2054: EMARSS PAYLOADS | - | 0.456 | 0.000 | - | 0.000 | - | - | - | - | Continuing | Continuing |
| • EH3: EMARSS Payloads ADV DEV | 5.916 | 15.069 | 0.000 | - | 0.000 | - | - | - | - | 0.000 | 20.985 |

Remarks
The EMARSS Research Development Technology & Evaluation (RDT&E) efforts are found in the following two project lines; 0305206AEH2 EMARSS ADV DEV (Fixed Wing Project Office) and 0305206AEH3 EMARSS Payloads ADV DEV (Project Manager Sensors - Aerial Intelligence). The supporting Aircraft Procurement Army (APA) lines are A02112 (P-1 Line #20) for Fixed Wing and AZ2054 (P-1 Line #15) for Aerial Intelligence. Separate funding lines support the Army Acquisition Executive's directive, codified in the October 28, 2011 memorandum, to assign overall acquisition lead for manned airborne intelligence systems to Program Executive Officer for Aviation; and overall sensor, processing, exploitation, and dissemination responsibilities to Program Executive Officer for Intelligence, Electronic Warfare, and Sensors.

D. Acquisition Strategy
The acquisition strategy, supported by the EMARSS Capabilities Production Document (CPD), is to design, test and field 24 systems as well as provide enhancements to the following sensor capabilities in order to maintain relevancy to the Warfighter: Electro-optical/Infrared (EO/IR)/Full Motion Video (FMV); Communications Intelligence (COMINT); Wide Area Aerial Surveillance (WAAS); Light Imaging Detection and Ranging (LiDAR) and improved Synthetic Aperture Radar / Moving Target Indicator (SAR/MTI) radar; line-of-site (LOS) and beyond line-of-site (BLOS) communications; and Processing Exploitation and Dissemination (PED) supporting two Distributed Common Ground System - Army (DCGS-A) enabled operator workstations. The EMARSS fleet of 23 systems consists of the following variants: eight (8)

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / <i>Airborne Reconnaissance Systems</i> | Project (Number/Name) EH2 / <i>EMARSS ADV DEV</i> |
| EMARSS-G (Geo-INT); four (4) EMARSS-V (Vehicle and Dismount Exploitation Radar, VaDER); seven (7) EMARSS-M (Multi-INT); and four (4) EMARSS-S (SIGINT); one (1) aircraft was damaged beyond economical repair. | | |

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH2 / EMARSS ADV DEV |
|--|---|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|--|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| PMO | RO | FW PO/ PM SAI : Huntsville, AL/ Aberdeen, MD | 0.809 | 0.156 | Jan 2022 | 0.178 | Jan 2023 | - | | - | | - | 0.000 | 1.143 | - |
| Subtotal | | | 0.809 | 0.156 | | 0.178 | | - | | - | | - | 0.000 | 1.143 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|--|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Non-Recurring Engineering | SS/CPFF | Textron;MIT; TDD-A; RTC : Wichita, KS' Lexington, MA | 7.716 | 1.678 | May 2022 | - | | - | | - | | - | 0.000 | 9.394 | - |
| Subtotal | | | 7.716 | 1.678 | | - | | - | | - | | - | 0.000 | 9.394 | N/A |

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Testing | MIPR | AFTD RTC;MIT;TDD-A : Eglin, AFB, FL; Lexington, MA | 1.636 | - | | 1.918 | May 2023 | - | | - | | - | 0.000 | 3.554 | - |
| Subtotal | | | 1.636 | - | | 1.918 | | - | | - | | - | 0.000 | 3.554 | N/A |

| Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract | | | |
|----------------------------|----------------|----------------|---------------------|--------------------|----------------------|-------------------------|-------------------|---------------------------------|-------|--------|-----|
| Project Cost Totals | | | 10.161 | 1.834 | 2.096 | - | - | - | 0.000 | 14.091 | N/A |

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH2 / EMARSS ADV DEV |
|--|---|--|

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Army Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Developmental Initiatives for Performance Enhancements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note
 FY21 \$1.998 FY22 \$1.834 FY23 \$2.096

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH2 / EMARSS ADV DEV |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Non-Recurring Engineering | 3 | 2019 | 2 | 2021 |
| Army Testing | 3 | 2021 | 4 | 2023 |
| Developmental Initiatives for Performance Enhancements | 3 | 2022 | 4 | 2023 |

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | | | | Project (Number/Name) EH3 / EMARSS Payloads ADV DEV | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| EH3: EMARSS Payloads ADV DEV | - | 5.916 | 15.069 | - | - | - | - | - | - | - | 0.000 | 20.985 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS) will be divested by Fiscal Year (FY) 2025. EMARSS is C-12 based, direct support, manned airborne intelligence collection, processing, and targeting support system. It provides a persistent capability to detect, locate, classify/identify, and track surface targets with a high degree of timeliness and accuracy. EMARSS is assigned to the United States (U.S.) Army Intelligence and Security Command (INSCOM) Aerial Exploitation Battalions, providing Aerial Intelligence, Surveillance and Reconnaissance support to combatant commanders. EMARSS is also assigned to the United States Army Training and Doctrine Command (TRADOC) in support of training at the US Army Intelligence Center of Excellence (USAICoE). The Army Acquisition Objective for EMARSS is 36 systems, with an Army Procurement Objective of 24, to include the following variants: eight (8) EMARSS-G (Geo-INT); four (4) EMARSS-V (Vehicle and Dismount Exploitation Radar, VaDER); eight (8) EMARSS-M (Multi-INT); and four (4) EMARSS-S (SIGINT).

This funding line supported critical enhancements to the following sensor capabilities in order to maintain relevancy to the Warfighter: Communications Intelligence (COMINT); Signals Intelligence (SIGINT); Wide Area Aerial Surveillance (WAAS); Light Imaging Detection and Ranging (LiDAR) and improved Synthetic Aperture Radar / Moving Target Indicator (SAR/MTI) Radar; Line-Of-Site (LOS) and Beyond Line-Of-Sight (BLOS) communications; and Processing Exploitation and Dissemination (PED) supporting two Distributed Common Ground System - Army (DCGS-A) enabled operator workstations.

0305206A EH3 has no Fiscal Year (FY) 2024 funding request.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: EMARSS - Sensor Enhancement | 5.524 | 6.287 | - |
| Description: Enhancement of EMARSS Joint All-Domain Operations (JADO) SIGINT capabilities to decrease target identification time, increase probability of intercept, and increased signal simultaneity. Efforts include software porting and design analysis of modular open system architecture. | | | |
| FY 2023 Plans: Continues sensor software updates to develop the next generation SIGINT capability and improve performance in a near peer environment to integrate capabilities developed by other programs. | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Decrease in FY24 funding due to Army decision to no longer invest in legacy aircraft. | | | |
| Title: EMARSS - Synthetic Aperture Radar / Moving Target Indicator (SAR/MTI) | - | 8.300 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH3 / EMARSS Payloads ADV DEV |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>Description: Efforts include development of upgraded Synthetic Aperture Radar (SAR) / Moving Target Indicator (MTI) extended range antenna and associated signal processor to provide increased effective range and target processing.</p> <p>FY 2023 Plans: Continue development of Synthetic Aperture Radar (SAR) / Moving Target Indicator (MTI) modification due to VaDER obsolescence and to increase range for improved JADO mission relevancy.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The program has no FY 2024 funding request due to Army decision to no longer invest in legacy aircraft.</p> | | | |
| <p>Title: EMARSS - Sensor Engineering Support</p> <p>Description: Matrix engineering support for sensor enhancements.</p> <p>FY 2023 Plans: Continue matrix government engineering support for sensor enhancements.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease in FY24 funding due to Army decision to no longer invest in legacy aircraft.</p> | 0.340 | 0.290 | - |
| <p>Title: Program Management Support</p> <p>Description: Program Management Office (PMO) support and travel, as well as Systems Engineering and Technical Assistance (SETA) support.</p> <p>FY 2023 Plans: Continue Program Management Office government support and SETA support.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Decrease in FY24 funding due to Army decision to no longer invest in legacy aircraft.</p> | 0.052 | 0.192 | - |
| Accomplishments/Planned Programs Subtotals | 5.916 | 15.069 | - |

| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
|--|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| Line Item | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| • A02112: EMARSS SEMA MODS | 1.568 | 1.591 | 0.000 | - | 0.000 | - | - | - | - | Continuing | Continuing |
| • AZ2054: EMARSS PAYLOADS | - | 0.456 | 0.000 | - | 0.000 | - | - | - | - | Continuing | Continuing |
| • EH2: EMARSS ADV DEV | 1.834 | 2.096 | 0.000 | - | 0.000 | - | - | - | - | 0.000 | 3.930 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH3 / EMARSS Payloads ADV DEV |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
|------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|

Remarks

The EMARSS Research Development Technology & Evaluation (RDT&E) efforts are found in the following two (2) project lines; 0305206AEH2 EMARSS ADV DEV (Fixed Wing Project Office) and 0305206AEH3 EMARSS Payloads ADV DEV (Project Manager Sensors - Aerial Intelligence). The supporting procurement lines are A02112 and AZ2054. AZ2054 funding supports subsequent procurement and integration of the RDTE funded sensor enhancements. Separate funding lines support the Army Acquisition Executive's directive, codified in the October 28, 2011 memorandum to assign overall acquisition lead for manned airborne intelligence systems to Program Executive Officer for Aviation and overall sensor, processing, exploitation, and dissemination responsibilities to Program Executive Officer for Intelligence, Electronic Warfare, and Sensors.

D. Acquisition Strategy

EMARSS will be divested by Fiscal Year 2025. The acquisition strategy, supported by the EMARSS CPD, was to provide critical enhancements to the following sensor capabilities in order to maintain relevancy to the Warfighter: Electro-Optical (EO)/Infrared (IR) Full-Motion Video (FMV), Communications Intelligence (COMINT); Signals Intelligence (SIGINT); Wide Area Aerial Surveillance (WAAS); Light Imaging Detection and Ranging (LiDAR) and improved Synthetic Aperture Radar / Moving Target Indicator (SAR/MTI) Radar; Line-Of-Site (LOS) and Beyond Line-Of-Sight (BLOS) communications; and Processing Exploitation and Dissemination (PED) supporting two Distributed Common Ground System - Army (DCGS-A) enabled operator workstations. The EMARSS fleet of 24 systems consists of the following variants: eight EMARSS-G (Geo-INT); four EMARSS-V (Vehicle and Dismount Exploitation Radar, VaDER); eight EMARSS-M (Multi-INT); and four EMARSS-S (SIGINT). Loss of an EMARSS-M in 2020 reduced the operational fleet to 23 aircraft.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|---|---|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH3 / EMARSS Payloads ADV DEV |
|--|---|---|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| PMO | C/CR | PEO IEW&S, PM SAI : APG, MD | 1.058 | 0.052 | Jan 2022 | 0.192 | Nov 2022 | - | | - | | - | Continuing | Continuing | - |
| Subtotal | | | 1.058 | 0.052 | | 0.192 | | - | | - | | - | Continuing | Continuing | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|-----------------------------------|---|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| LiDAR sensor enhancement | SS/CPFF | JHU APL : Laurel, MD | 1.500 | - | | - | | - | | - | | - | 0.000 | 1.500 | - |
| AWAPSS sensor enhancement | C/CPIF | BAE : Nashua, CT | 0.200 | - | | - | | - | | - | | - | 0.000 | 0.200 | - |
| SIGINT sensor enhancement | C/CPFF | CACI/Boeing : APG, MD | 0.114 | - | | - | | - | | - | | - | 0.000 | 0.114 | - |
| SIGINT sensor enhancement | C/CPFF | Lockheed Martin Integrated Systems : Marlton, NJ | 0.948 | - | | - | | - | | - | | - | 0.000 | 0.948 | - |
| Advanced LiDAR Development | SS/CPFF | Johns Hopkins University Applied Physics Laboratory, LLC : Laurel, Md | 7.424 | - | | - | | - | | - | | - | 0.000 | 7.424 | - |
| SIGINT Sensor Enhancement | C/CPFF | AASKI : Tinton Falls, NJ | 11.625 | 5.524 | Jan 2022 | 6.287 | Jan 2023 | - | | - | | - | Continuing | Continuing | - |
| SAR/MTI Development | C/CPFF | Northrop Grumman : Linthicum, MD | - | - | | 8.300 | Feb 2023 | - | | - | | - | 0.000 | 8.300 | - |
| Subtotal | | | 21.811 | 5.524 | | 14.587 | | - | | - | | - | Continuing | Continuing | N/A |

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|--|--|---|-------------------------|---|--|
| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | | Project (Number/Name) EH3 / EMARSS Payloads ADV DEV | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| SIGINT Sensor Enhancement | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note
Execution of FY 2023 funding continues into FY 2024 due to non-severable contract.

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH3 / EMARSS Payloads ADV DEV |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| QRC to EMARSS POR Modification and Conversion | 2 | 2015 | 4 | 2019 |
| EMARSS Fielding | 3 | 2017 | 4 | 2019 |
| Advanced LiDAR Development | 2 | 2018 | 2 | 2020 |
| Advanced LiDAR Analysis Study | 2 | 2020 | 2 | 2020 |
| Advanced LiDAR PDR | 2 | 2020 | 2 | 2020 |
| SIGINT Sensor Enhancement | 2 | 2020 | 4 | 2024 |

Note
Execution of FY 2023 funding continues into FY 2024 due to non-severable contract.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH5 / ARL Payloads ADV DEV |
|--|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| EH5: ARL Payloads ADV DEV | - | 0.017 | - | - | - | - | - | - | - | - | 0.000 | 0.017 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Airborne Reconnaissance Low - Enhanced (ARL-E) was terminated in Fiscal Year 2022.

0305206A EH5 has no Fiscal Year (FY) 2024 funding request due to program termination.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| Title: New Signals (COMINT/Software Upgrades) | 0.017 | - | - |
| Description: To develop software for Signals 1, 3, 4, 5, and 6. | | | |
| Accomplishments/Planned Programs Subtotals | 0.017 | - | - |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
|---|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| • AZ2050: ARL PAYLOADS | 18.381 | - | 0.000 | - | 0.000 | - | - | - | - | Continuing | Continuing |
| • DX9: National Integration To Tactical Systems | 2.796 | 3.197 | 3.187 | - | 3.187 | 3.214 | 3.415 | 3.450 | 3.489 | 0.000 | 22.748 |
| • A02110: ARL SEMA MODS | 14.437 | - | 0.000 | - | 0.000 | - | - | - | - | Continuing | Continuing |

Remarks

The ARL-E Research Development Technology & Evaluation (RDT&E) efforts are found in the following two (2) project lines; 0305206AEH4 ARL ADV DEV (Fixed Wing Project Office) and 0305206AEH5 ARL Payloads ADV DEV (Project Manager Sensors - Aerial Intelligence). The supporting procurement lines are A02110 and AZ2050. Separate funding lines support the Army Acquisition Executive's directive, codified in the October 28, 2011 memorandum, to assign overall acquisition lead for manned airborne Intelligence systems to Program Executive Officer for Aviation; and overall sensor, processing, exploitation, and dissemination responsibilities to Program Executive Officer for Intelligence, Electronic Warfare, and Sensors.

D. Acquisition Strategy

Airborne Reconnaissance Low - Enhanced (ARL-E) was terminated in Fiscal Year 2022.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH5 / ARL Payloads ADV DEV |
|--|---|--|

| Management Services (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Program Management | TBD | PM SAI : Aberdeen Proving Ground, MD | 0.260 | - | | - | | - | | - | | - | 0.000 | 0.260 | - |
| Subtotal | | | 0.260 | - | | - | | - | | - | | - | 0.000 | 0.260 | N/A |

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|----------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| New Signals (COMINT/ Software Upgrades) | C/CPFF | Boeing Argon : Mountain View, CA | 53.543 | 0.017 | Jan 2022 | - | | - | | - | | - | 0.000 | 53.560 | - |
| Radar Software Electronic Protection Measures/ Enhancements | SS/CPFF | Northrup Grumman : Baltimore, MD | 1.799 | - | | - | | - | | - | | - | 0.000 | 1.799 | - |
| Subtotal | | | 55.342 | 0.017 | | - | | - | | - | | - | 0.000 | 55.359 | N/A |

| Test and Evaluation (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|----------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Test Support to New Signals (COMINT/Software Upgrades) | C/CPFF | Boeing Argon : Mountain View, CA | 12.690 | - | | - | | - | | - | | - | 0.000 | 12.690 | - |
| Radar Software Electronic Protection Measures/ Enhancements | SS/CPFF | Northrup Grumman : Baltimore, MD | 0.200 | - | | - | | - | | - | | - | 0.000 | 0.200 | - |
| Subtotal | | | 12.890 | - | | - | | - | | - | | - | 0.000 | 12.890 | N/A |

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | | 68.492 | 0.017 | - | - | - | 0.000 | 68.509 | N/A |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army | | | | | | | Date: March 2023 | | | |
| Appropriation/Budget Activity 2040 / 7 | | | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | | | Project (Number/Name) EH5 / ARL Payloads ADV DEV | | | | |

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
|--|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|

| | | | | | | | | | |
|----------------|--|--|--|--|--|--|--|--|--|
| Remarks | | | | | | | | | |
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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH5 / ARL Payloads ADV DEV | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|-----------------------------|---|---|---|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| ARL-E Signals 3 and 4 Development and Test | [Redacted] | | | | [Redacted] | | | | | | | | | | | | | | | | | | | | | | | |
| | Signal Development and Test | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note
Execution of FY 2022 funding continues into FY 2023 due to non-severable contract.

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH5 / ARL Payloads ADV DEV |

Schedule Details

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| ARL-E MEP Contract Award | 1 | 2016 | 1 | 2016 |
| ARL-E MEP Integration | 1 | 2016 | 4 | 2021 |
| ARL-E Signals 3 and 4 Development and Test | 2 | 2016 | 1 | 2023 |
| ARL-E Signal 1 Development and Test | 4 | 2017 | 2 | 2020 |
| ARL-E Radar Software Enhancements Development | 1 | 2021 | 4 | 2021 |
| ARL-E Long Range Radar Development | 4 | 2017 | 3 | 2019 |
| ARL-E Long Range Radar Testing | 3 | 2019 | 3 | 2019 |

Note
Execution of FY 2022 funding continues into FY 2023 due to non-severable contract.

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|---|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | | | | Project (Number/Name) EH7 / Guardrail Common Sensor (GRCS) Payloads | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| EH7: Guardrail Common Sensor (GRCS) Payloads | - | 4.015 | - | - | - | - | - | - | - | - | 0.000 | 4.015 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Guardrail Common Sensor (GRCS) will be divested by FY 2025. The RC-12X GRCS is a fixed-wing, airborne COMINT and Electronic Intelligence (ELINT) collection and precision targeting location system. GRCS provides a persistent capability to detect, locate and classify/identify high value targets with a relevant degree of timeliness and accuracy. GRCS is assigned to two (2) U.S. Army INSCOM Aerial Exploitation Battalions providing AISR support to combatant commanders. The Army's Acquisition Objective/Army's Procurement Objective is 19 RC-12X; seven (7) fielded to 3rd Military Intelligence Battalion (MI BN); and seven (7) fielded to the 204th MI BN, and five (5) trainers within TRADOC and INSCOM.

0305206A EH7 has no Fiscal Year (FY) 2024 funding request.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: GRCS SIGINT Sensor Upgrades | 3.871 | - | - |
| Description: Funding line supports GRCS advanced signal enhancement efforts and software development and testing of signal enhancement infrastructure for GRCS updated SIGINT sensor development. Funding also supports simulation development to allow for continued software enhancements and capability development to keep pace with emerging threats and new technology as well as provide the training required to maintain military proficiency. | | | |
| Title: Program Management Support | 0.144 | - | - |
| Description: Funds support program management office (PMO) efforts including travel. | | | |
| Accomplishments/Planned Programs Subtotals | 4.015 | - | - |

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
|------------------------------|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| • AZ2052: GUARDRAIL PAYLOADS | 10.085 | 3.714 | 0.000 | - | 0.000 | - | - | - | - | 0.000 | 13.799 |
| Remarks | | | | | | | | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / <i>Airborne Reconnaissance Systems</i> | Project (Number/Name) EH7 / <i>Guardrail Common Sensor (GRCS) Payloads</i> |

D. Acquisition Strategy

GRCS will be divested by Fiscal Year 2025.

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|--|--|---|-------------------------|---|--|
| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | | Project (Number/Name) EH7 / Guardrail Common Sensor (GRCS) Payloads | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|---------------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| GRCS SIGINT Sensor Enhancements | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note
Execution of FY 2022 funding continues into FY 2023 due to non-severable contract.

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|---|---|---|
| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems | Project (Number/Name) EH7 / Guardrail Common Sensor (GRCS) Payloads |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| USFK ONS Development/JICD 4.2 Compliance | 1 | 2019 | 2 | 2019 |
| GRCS SIGINT Sensor Enhancements | 2 | 2020 | 2 | 2023 |

Note
 JICD: Joint Interface Control Document
 GRCS SIGINT: Guardrail Common Sensor Signals Intelligence

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|--|---|
| Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | R-1 Program Element (Number/Name) PE 0305219A / MQ-1 Gray Eagle UAV |
|--|---|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-------------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | - | - | 6.629 | - | 6.629 | 6.838 | 6.945 | 7.052 | 7.260 | Continuing | Continuing |
| MQ2: MQ-1C Gray Eagle Modifications | - | - | - | 6.629 | - | 6.629 | 6.838 | 6.945 | 7.052 | 7.260 | Continuing | Continuing |

Program MDAP/MAIS Code: 420

Note

The funding in this PE was restructured from PE 0203744A (Aircraft Modifications/Product Improvement Programs).

A. Mission Description and Budget Item Justification

The MQ-1C Gray Eagle provides the Army with an extended range, multi-purpose (ERMP) Unmanned Aircraft System (UAS); capable of executing reconnaissance, security, attack, and intelligence collection missions in the range of military operations (ROMO). Sensors/payloads include an Electro-Optical/Infrared/Laser Designator (EO/IR/LD), Synthetic Aperture Radar/Moving Target Indicator (SAR/MTI), Signals Intelligence (SIGINT), and HELLFIRE missiles; providing a near all-weather mission capability. MQ-1C Gray Eagle is a dedicated, assured, multi-mission UAS fielded to all Army Divisions, Intelligence and Security Command and Army Special Operations Command in support of the commander's warfighting priorities within multi-domain battle operations.

FY2024 RDTE dollars, in the amount of \$6.629M, supports development efforts required for integration of vision based navigation (VBN) onto MQ-1C Gray Eagle platforms. This complementary navigation solution supports the ability of the platform to Survive, Persist, and Thrive (continue mission) in Global Positioning System (GPS) denied/contested environments (emerging GPS threats). M-Code transition is required by public law 111-383.

| B. Program Change Summary (\$ in Millions) | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 0.000 | 0.000 | 0.000 | - | 0.000 |
| Current President's Budget | 0.000 | 0.000 | 6.629 | - | 6.629 |
| Total Adjustments | 0.000 | 0.000 | 6.629 | - | 6.629 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 6.629 | - | 6.629 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army Date: March 2023

Appropriation/Budget Activity
2040: *Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development*

R-1 Program Element (Number/Name)
PE 0305219A / MQ-1 Gray Eagle UAV

Change Summary Explanation

In August 2022, all funding (beginning with FY24) was transferred from PE 0270344A (Aircraft Modifications/Product Improvement Programs) / Project code EB6. There was \$0.00 funding for FY2023. The FY2024 Funds of \$6.629M is for the Assured Positioning Navigation and Timing requirement identified in the CPD for ERMP UAS MQ-1C Version 8.7, Rev 3 July 10,2015 subsection CPD 6b(3)f(1-2). The total requirement, \$34.724M, will carry through FY2024 - FY2028. A-PNT is a solution to Survive, Persist, and Thrive in GPS denied/contested environments (emerging GPS threats).

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305219A / MQ-1 Gray Eagle UAV | Project (Number/Name) MQ2 / MQ-1C Gray Eagle Modifications |
|--|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|-------------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| MQ2: MQ-1C Gray Eagle Modifications | - | - | - | 6.629 | - | 6.629 | 6.838 | 6.945 | 7.052 | 7.260 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

Note

The funding in this PE was restructured from PE 0203744A (Aircraft Modifications/Product Improvement Programs).

A. Mission Description and Budget Item Justification

The MQ-1C Gray Eagle provides the Army with an extended range, multi-purpose (ERMP) Unmanned Aircraft System (UAS); capable of executing reconnaissance, security, attack, and intelligence collection missions in the range of military operations (ROMO). Sensors/payloads include an Electro-Optical/Infrared/Laser Designator (EO/IR/LD), Synthetic Aperture Radar/Moving Target Indicator (SAR/MTI), Signals Intelligence (SIGINT), and HELLFIRE missiles; providing a near all-weather mission capability. MQ-1C Gray Eagle is a dedicated, assured, multi-mission UAS fielded to all Army Divisions, Intelligence and Security Command and Army Special Operations Command in support of the commander's warfighting priorities within multi-domain battle operations.

FY2024 RDTE dollars, in the amount of \$6.629M, supports development efforts required for integration of vision based navigation (VBN) onto MQ-1C Gray Eagle platforms. This complementary navigation solution supports the ability of the platform to Survive, Persist, and Thrive (continue mission) in Global Positioning System (GPS) denied/contested environments (emerging GPS threats).

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| Title: Assured Positioning, Navigation, & Timing | - | - | 6.629 |
| FY 2024 Plans: FY2024 RDTE dollars, in the amount of \$6.629M, supports development efforts required for integration of vision based navigation (VBN) onto MQ-1C Gray Eagle platforms. This complementary navigation solution supports the ability of the platform to Survive, Persist, and Thrive (continue mission) in GPS denied/contested environments (emerging GPS threats). | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: This funding was transferred from PE 0270344A (Aircraft Modifications/Product Improvement Programs). The former PE had \$0.00 funding for FY2023. The FY2024 Funds of \$6.629M is for the A-PNT requirement and will carry through FY2028 with total \$34.724M for FY2024 - FY2028. | | | |
| Accomplishments/Planned Programs Subtotals | - | - | 6.629 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | Date: March 2023 |
|--|-------------------------|

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305219A / MQ-1 Gray Eagle UAV | Project (Number/Name) MQ2 / MQ-1C Gray Eagle Modifications |
|--|---|--|

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

| <u>Line Item</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u> <u>Base</u> | <u>FY 2024</u> <u>OCO</u> | <u>FY 2024</u> <u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u> <u>Complete</u> | <u>Total Cost</u> |
|-----------------------------------|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| • AA6601: <i>Gray Eagle Mods2</i> | 123.143 | 133.038 | 14.959 | - | 14.959 | 3.916 | 5.138 | 5.668 | 10.782 | 0.000 | 296.644 |

Remarks

D. Acquisition Strategy

An ERMP Operational Requirement Document (ORD) was approved by the Joint Requirement Oversight Council (JROC) 6 Apr 2005. Milestone B occurred on 20 Apr 2005, and the System Development and Demonstration contract was awarded 8 Aug 2005, as a result of a competitive solicitation which included a vendor system capabilities demonstration. A Capabilities Production Document (CPD) was approved 14 Mar 2009. MQ-1C Gray Eagle completed Follow-On Test and Evaluation (FOTE) on 12 Jun 2015.

This RDTE effort funds development/integration and test of key Assured Positioning Navigation and Timing (A-PNT) efforts for Gray Eagle. These include Vision Based Navigation (VBN), which will provide a "non-GPS" based navigation solution on the Gray Eagle aircraft. VBN provides an alternate means of estimating aircraft position during GPS denial/outage by tracking aircraft movement using video imagery. Additionally, the RDTE effort will fund integration of an independent timing source to maintain functionality of time dependent components on the aircraft. Outyear RDTE will fund the selection and integration of an M-Code compatible/capable 3rd Navigator to replace the current obsolete Athena 511 GPS receiver, and also fund the development of other complementary/alternate A-PNT systems. The inclusion of these capabilities on the Gray Eagle aircraft increases survivability and help ensure operators can continue mission in GPS contested environments. M-Code transition is required by public law 111-383.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army **Date:** March 2023

| | | |
|--|---|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305219A / MQ-1 Gray Eagle UAV | Project (Number/Name) MQ2 / MQ-1C Gray Eagle Modifications |
|--|---|--|

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Assured Positioning, Navigation & Timing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | A-PNT | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0305219A / MQ-1 Gray Eagle UAV | Project (Number/Name) MQ2 / MQ-1C Gray Eagle Modifications |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Assured Positioning, Navigation & Timing | 2 | 2024 | 4 | 2029 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| | |
|---|--|
| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0307665A / <i>Biometrics Enabled Intelligence</i> |
|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | 0.000 | 2.066 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.066 |
| BI7: <i>Biometrics Enabled Intelligence</i> | - | 2.066 | - | - | - | - | - | - | - | - | 0.000 | 2.066 |

A. Mission Description and Budget Item Justification

Identity Intelligence Analytic Repository (I2AR) will serve as an analytical tool to produce, manage, and disseminate the DoD Biometrically Enabled Watchlist (BEWL) as well as extend opportunities for system and data integration with enhanced analytic data sharing across the Army and Intelligence Community (IC) partners. Analysts will use I2AR to conduct analysis and develop intelligence reports, in support of DoD and national community missions. I2AR will include the legacy Biometrics Identity Intelligence Resource (BI2R) functionality as well as elasticity, encryption, and open source software for enduring interoperability with DoD, IC, and external partners.

Justification:
There is no FY2024 funding request.

B. Program Change Summary (\$ in Millions)

| | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024 Base</u> | <u>FY 2024 OCO</u> | <u>FY 2024 Total</u> |
|-------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 2.066 | 0.000 | 0.000 | - | 0.000 |
| Current President's Budget | 2.066 | 0.000 | 0.000 | - | 0.000 |
| Total Adjustments | 0.000 | 0.000 | 0.000 | - | 0.000 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0307665A / <i>Biometrics Enabled Intelligence</i> | | | | Project (Number/Name) B17 / <i>Biometrics Enabled Intelligence</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| B17: <i>Biometrics Enabled Intelligence</i> | - | 2.066 | - | - | - | - | - | - | - | - | 0.000 | 2.066 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Identity Intelligence Analytic Repository (I2AR) will serve as an analytical tool to produce, manage, and disseminate the DoD Biometrically Enabled Watchlist (BEWL) as well as extend opportunities for system and data integration with enhanced analytic data sharing across the Army and Intelligence Community (IC) partners. Analysts will use I2AR to conduct analysis and develop intelligence reports, in support of DoD and national community missions. I2AR will include the legacy Biometrics Identity Intelligence Resource (BI2R) functionality as well as elasticity, encryption, and open source software for enduring interoperability with DoD, IC, and external partners.

Justification:
There is no FY2024 funding request.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| Title: Army G2 Projects - B17 | 2.066 | - | - |
| Description: Development of intelligence capabilities currently used to support Operation Freedom's Sentinel (OFS) and Operation Inherent Resolve (OIR) including the Identity Intelligence Analytic Repository (I2AR). | | | |
| Accomplishments/Planned Programs Subtotals | 2.066 | - | - |

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Army **Date:** March 2023

| | | |
|--|--|--|
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0307665A / <i>Biometrics Enabled Intelligence</i> | Project (Number/Name) B17 / <i>Biometrics Enabled Intelligence</i> |
|--|--|--|

| Product Development (\$ in Millions) | | | | FY 2022 | | FY 2023 | | FY 2024 Base | | FY 2024 OCO | | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | | | |
| Base Products Development | C/IDIQ | Various : TBD | 59.462 | 2.066 | Mar 2022 | - | | - | | - | | - | 0.000 | 61.528 | - |
| Subtotal | | | 59.462 | 2.066 | | - | | - | | - | | - | 0.000 | 61.528 | N/A |

Remarks
Product Office used an Other Transaction Agreement (OTA) for product selection.

| | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| Project Cost Totals | 59.462 | 2.066 | - | - | - | - | 0.000 | 61.528 | N/A |

Remarks
Prior years are mostly associated with the termination of the Joint Personnel Identification Version 2 (JPIv2) project.

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0307665A / <i>Biometrics Enabled Intelligence</i> | Project (Number/Name) B17 / <i>Biometrics Enabled Intelligence</i> | |

| Event Name | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | | | | | |
|------------------------------------|---------|---|---|---|-----------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|--|--|--|--|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | |
| Army G2 Projects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FY22 Product Development | FY22 PD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FY22 Systems Test & Development | | | | | FY22 ST&E | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FY22 Operational Test & Evaluation | | | | | FY22 OT&E | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0307665A / <i>Biometrics Enabled Intelligence</i> | Project (Number/Name) B17 / <i>Biometrics Enabled Intelligence</i> |

Schedule Details

| Events | Start | | End | |
|------------------------------------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Army G2 Projects | 1 | 2017 | 1 | 2025 |
| FY20 Systems Test & Evaluation | 3 | 2020 | 4 | 2021 |
| FY20 Operational Test & Evaluation | 4 | 2020 | 4 | 2021 |
| FY22 Product Development | 1 | 2022 | 3 | 2022 |
| FY22 Systems Test & Development | 3 | 2022 | 4 | 2023 |
| FY22 Operational Test & Evaluation | 4 | 2022 | 1 | 2024 |

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army **Date:** March 2023

| Appropriation/Budget Activity | | | | | R-1 Program Element (Number/Name) | | | | | | | |
|--|-------------|---------|---------|--------------|---|---------------|---------|---------|---------|---------|------------------|------------|
| 2040: Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development | | | | | PE 0708045A / End Item Industrial Preparedness Activities | | | | | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| Total Program Element | - | 101.466 | 132.270 | 75.317 | - | 75.317 | 67.048 | 67.129 | 67.845 | 68.584 | 0.000 | 579.659 |
| E25: Mfg Science & Tech | - | 59.466 | 91.270 | 75.317 | - | 75.317 | 67.048 | 67.129 | 67.845 | 68.584 | 0.000 | 496.659 |
| EA2: MANTECH INITIATIVES (CA) | - | 42.000 | 41.000 | - | - | - | - | - | - | - | 0.000 | 83.000 |

A. Mission Description and Budget Item Justification

This Program Element (PE) develops, demonstrates, and transitions manufacturing technologies and processes that enable improvements in producibility and affordability of emerging and enabling components and subsystems of Army ground and air platforms, Soldier systems, weapons systems, air & missile defense systems, as well as sensors and electronics. Initiatives within the PE result in cost savings and reduced risk of transitioning military-unique manufacturing processes into production. Project E25 fosters the transfer of new/improved manufacturing technologies to the industrial base, including manufacturing efforts that have potential for high payoff across the spectrum of Army systems.

Work in this PE is performed by the United States (U.S.) Army laboratories and research centers, U.S. Army Program Executive Offices and Program Management Offices, and U.S. Army depots and arsenals.

The cited work is consistent with the Under Secretary of Defense, Research and Engineering science and technology focus areas and the Army Modernization Strategy.

| B. Program Change Summary (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 103.720 | 91.270 | 74.986 | - | 74.986 |
| Current President's Budget | 101.466 | 132.270 | 75.317 | - | 75.317 |
| Total Adjustments | -2.254 | 41.000 | 0.331 | - | 0.331 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | 41.000 | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -2.254 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | 0.331 | - | 0.331 |

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: EA2: MANTECH INITIATIVES (CA)

| FY 2022 | FY 2023 |
|---------|---------|
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| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army | Date: March 2023 |
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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i> | R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i> |
|---|--|

Congressional Add Details (\$ in Millions, and Includes General Reductions)

| | FY 2022 | FY 2023 |
|--|---------|---------|
| Congressional Add: <i>Scalability of Functional Fabric Manufacturing - Continued</i> | 5.000 | - |
| Congressional Add: <i>Nanoscale Materials Manufacturing- Continued</i> | 5.000 | - |
| Congressional Add: <i>Advanced Manufacturing Cell for Missile Fins</i> | 8.000 | - |
| Congressional Add: <i>Liquid Hydrogen Refueling Systems</i> | 10.000 | 10.000 |
| Congressional Add: <i>N2O5</i> | 10.000 | 10.000 |
| Congressional Add: <i>Lightweight Transparent Film Armor</i> | 4.000 | 5.000 |
| Congressional Add: <i>Improved Additive Manufacturing Qualifications Methods for Army Aviation</i> | - | 10.000 |
| Congressional Add: <i>Isostatic Pressure Armor</i> | - | 6.000 |
| Congressional Add Subtotals for Project: EA2 | 42.000 | 41.000 |
| Congressional Add Totals for all Projects | 42.000 | 41.000 |

Change Summary Explanation

Increased funding due to revised economic assumptions.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Army **Date:** March 2023

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| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | Project (Number/Name) E25 / Mfg Science & Tech |
|--|---|--|

| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|------------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| <i>E25: Mfg Science & Tech</i> | - | 59.466 | 91.270 | 75.317 | - | 75.317 | 67.048 | 67.129 | 67.845 | 68.584 | 0.000 | 496.659 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

This Project develops and demonstrates manufacturing technologies and processes that enable improvements in producibility and affordability of emerging and enabling components and subsystems of Army ground and air platforms, Soldier systems, weapons systems, air & missile defense systems, and sensors and electronics. Work is performed to advance the state of the art in manufacturing processing and fabrication techniques for coatings, multifunctional materials, and structural elements for Army specific applications.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| <p>Title: Networks and Command, Control, Communications and Intelligence</p> <p>Description: ManTech efforts focused on an integrated system of hardware, software and infrastructure that is sufficiently mobile, reliable, user-friendly, discreet in signature, expeditionary and appropriate for any environment where the electromagnetic spectrum is denied or degraded. It also focuses on dependable communication or assured position, navigation, and timing; tactical space; navigation warfare; and Cyber operations. Additionally, it covers virtual and immersive Common Operation Environments in support of faster decision making. These efforts support the Army modernization priority for future systems and enabling areas for assured positioning, navigation, timing, and synthetic training environments. Efforts are aligned to programs within the executive offices of Intelligence Electronic Warfare & Sensors and Command Control Communications-Tactical.</p> <p>FY 2023 Plans: Continue to develop and advance manufacturing processes and capabilities supporting command and control systems/ subsystems and position, navigation, and timing systems.</p> <p>FY 2024 Plans: Continue to develop and advance manufacturing processes and capabilities supporting command and control systems/ subsystems and position, navigation, and timing systems. Specific plans include continued super optical improvement supporting 3rd Gen Dewar; continued support to the Low Chip Scale Atomic Clock; and planned efforts to support the modernization of Silicone Foundry Processes for the production of read out integrated circuits.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding Increase is part of the realignment to the Networks/Command, Control, Communications, and Intelligence portfolio to support the production or the low cost chip scale atomic clock and the modernization of Silicon Foundry Processes for the</p> | 10.542 | 9.369 | 21.575 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i> | Project (Number/Name) E25 / <i>Mfg Science & Tech</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| production of read out integrated circuits. This effort will scale up production making the more reliable technology assessable and affordable for multiple applications. | | | | |
| Title: Long Range Precision Fires Description: The effort funds manufacturing improvements to support areas that enable hypersonics, cannons, and missiles. Efforts focus on reduction in cost and time for manufacturing. | | 7.369 | - | - |
| Title: Air & Missile Defense Description: This effort funds advance manufacturing processes and capabilities supporting air and missile defense efforts. Efforts include manufacturing improvements to missile systems, directed energy systems, propulsion, and radar technologies. | | 12.409 | - | - |
| Title: Weapon Systems Description: Manufacturing technology efforts focused on current and future comprehensive weapons system platforms which include munitions and formations that improve range, lethality, mobility, precision, target acquisition and force protection capabilities within multi-domain operations. Additionally, these efforts support the Army modernization priorities for long-range precision fires (LRPF) as well as air and missile defense (AMD). LRPF is focused on strategic fires, precision strike missile capabilities, and extended range cannon artillery. AMD includes directed energy systems and interceptors focused on providing maneuverability for short range air defense, and indirect fire protection capabilities. Efforts are aligned to programs within the executive office of Missile and Space, and the joint executive office Armaments & Ammunition. Formerly titled Long Range Precision Fires and Air & Missile Defense. This effort is not new, it has been retitled to better align to both current and future acquisition systems. FY 2023 Plans: Continue to develop and advance manufacturing processes for weapon systems to include long range precision fires resulting in the affordability and producibility of advanced energetics, warheads, propulsion, guidance and navigation technology. Additionally supports air and missile defense capabilities focused on the affordability and producibility of directed energy systems, advanced missiles and seekers, guidance and control, advanced aero structures / propulsion, air defense radar technologies, directed energy weapon systems, high energy laser weapons systems, short range air defense, and indirect fire protection capability. FY 2024 Plans: Continue to develop and advance manufacturing processes for weapon systems to include long range precision fires resulting in the affordability and producibility of advanced energetics, warheads, propulsion, guidance and navigation technology. Additionally supports air and missile defense capabilities focused on the affordability and producibility of directed energy systems, advanced | | - | 43.626 | 28.622 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | Project (Number/Name) E25 / Mfg Science & Tech | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| missiles and seekers, guidance and control, advanced aero structures / propulsion, air defense radar technologies, high energy laser weapons systems, short range air defense, long range munitions, and indirect fire protection capability. Integrated plans are in place for multi-platform cannon tube production optimization meeting program executive office ground combat system's cost, compacity, and fielding goals. | | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Decrease in FY24 is result of emphasis in FY23 on directed energy to support the utilization of directed energy on multiple platforms through a comprehensive directed energy production plan for Army applications. The surge effort ramps down in FY24. | | | | |
| Title: Next Generation Combat Vehicle | | 5.629 | - | - |
| Description: This effort funds manufacturing technology advances needed for more affordable and reliable components and subsystems for tactical and combat vehicles and weapons systems. This effort focuses on addressing challenges in areas such as advanced armor, protection systems, lighter weight components, insensitive propellants, armament systems, precision munitions, engines, sensor systems, and vehicle power devices for current and future systems. | | | | |
| Title: Ground Systems | | - | 4.971 | 7.475 |
| Description: ManTech efforts focused primarily focused on Army land maneuverability and ground system platforms. These efforts support the Army's ability to gain positions of relative advantage, overmatch the enemy, protect Soldiers from harm, and impose a tempo of event and multiple simultaneous dilemmas on the enemy to overwhelm enemy effectiveness through ground mobility. Additionally, these efforts support the Army's modernization priority for Next Generation Combat Vehicles which integrate other close combat capabilities in manned and unmanned teaming, leveraging semi-autonomous and autonomous platforms in conjunction with improved firepower, protection, mobility and power generation capabilities. The ground portfolio also supports force projection and force protection technologies to enable the Army to realize close combat. Efforts are aligned to programs within the executive offices of Ground Combat Systems; Combat Support & Combat Service Support; and the joint program executive office, Armaments and Ammunition. | | | | |
| Formerly titled Next Generation Combat Vehicle. This effort is not new, it has been retitled to better align to both current and future acquisition systems. | | | | |
| FY 2023 Plans: Continue to develop and advance manufacturing processes and capabilities supporting ground vehicles that result in dependable technology with an emphasis on providing affordable and timely solutions. Efforts will include the continued maturation of the composite rubber track and transition of a 45 ton kit to the program shop for testing; testing and validation of a sub-system model | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / <i>End Item Industrial Preparedness Activities</i> | Project (Number/Name) E25 / <i>Mfg Science & Tech</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| to be used in the development of an end-to-end digital framework for ammo compartment design; and the advancement of high performance materials for improved performance. FY 2024 Plans: Continue to develop and advance manufacturing processes and capabilities supporting ground vehicles that result in dependable technology with an emphasis on providing affordable and timely solutions. Efforts will include advances in digital thread capabilities as well as the advanced processing of high performance materials at lower weights. FY 2023 to FY 2024 Increase/Decrease Statement: Increased Funding in FY24 ensures continued development and advancement of manufacturing processes and capabilities supporting ground vehicles. This supports the advancement in digital thread capabilities. | | | |
| Title: Future Vertical Lift Description: This effort funds manufacturing technology advances supporting future vertical lift platforms to increase operational reach and capabilities with a concentration on affordability and producibility through manufacturing solutions. | 11.301 | - | - |
| Title: Aviation Systems Description: ManTech efforts focused on Army manned and unmanned aviation platforms to improve maneuverability, range, speed, payload capacity, mission systems, survivability, reliability, and reduced logistical footprint. Additionally, these efforts support the Army Future Vertical Lift modernization priority through manufacturing technologies that provide next generation of vertical lift aircraft for the Army. Efforts are aligned to programs within the program executive office for Aviation. Formerly titled Future Vertical Lift. This effort is not new, it has been retitled to better align to both current and future acquisition systems. FY 2023 Plans: Continue to develop and advance manufacturing processes and capabilities supporting aviation platforms for attack, reconnaissance / long range assault capabilities, and air launched effects. Efforts include advancing the multi-laser stitching manufacturing process; the manufacturing of lithium ion batteries for aviation platforms; and the development and testing of digital thread advancements supporting aviation platforms. FY 2024 Plans: Continue to develop and advance manufacturing processes and capabilities supporting supporting aviation platforms for future attack, reconnaissance and long range assault capabilities, and air launched effects. Efforts will include additive manufacturing | - | 16.238 | 14.275 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | Project (Number/Name) E25 / Mfg Science & Tech | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2022 | FY 2023 | FY 2024 |
| efforts supporting leading edges; multi-laser stitching additive manufacturing; and enhance digital thread for aviation systems manufacturing. | | | | |
| FY 2023 to FY 2024 Increase/Decrease Statement: Funding is being realigned to support the production of the low cost chip scale atomic clock, within Networks/Command, Control, Communications, and Intelligence portfolio. | | | | |
| Title: Soldier Lethality | | 12.216 | - | - |
| Description: This effort funds manufacturing technology and processes in support of individual Soldier weapons, provide Soldiers with enhanced capabilities, and increase their ability to respond to emerging situations through advanced manufacturing processes with a concentration affordability and producibility. Work focuses on addressing challenges in areas such as multifunctional fabrics for shelters, uniforms and portage equipment; lightweight materials for body armor; and medical technologies such as biotechnology. | | | | |
| Title: Soldier Systems | | - | 13.929 | 3.370 |
| Description: ManTech efforts focused primarily on integrated Soldier and Squad weapon platforms. These efforts provide manufacturing solutions that enhance integrated Soldier capabilities through their equipment, personal sustainment, performance, protection, and communication. Additionally, this effort supports the Soldier Lethality modernization priority. Efforts are aligned to programs within the executive offices of Soldier; Combat Support and Combat Service Support; Chemical Biological Radiological and Nuclear Defense; and the joint program office for armaments and ammunition. | | | | |
| Formerly titled Soldier Lethality. This effort is not new, it has been retitled to better align to both current and future acquisition systems. | | | | |
| FY 2023 Plans: Increase the capability of individual Soldier weapons, provide Soldiers with enhanced capabilities, and increase their protection and ability to respond to emerging situations through advanced manufacturing technology and processes. Efforts will result in greater affordability and producibility with a concentration on next generation squad weapons and ammunition, Soldier borne power, enhanced protective materials and systems, and sensor development. Efforts will continue to advance manufacturing processes for advanced fuse piston; transition the upgrades to Warfighter tactical power; advance the transceiver optical module and silicone anode battery capabilities. Efforts will also ramp up the production processes for superior vision protection and advance the vacuum microwave drying technology. | | | | |
| FY 2024 Plans: | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | Project (Number/Name) E25 / Mfg Science & Tech |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|--|----------------|----------------|----------------|
| <p>Increase the capability of individual Soldier weapons, provide Soldiers with enhanced capabilities, and increase their protection and ability to respond to emerging situations through advanced manufacturing technology and processes. Efforts will result in greater affordability and producibility with a concentration on next generation squad weapons and ammunition, Soldier borne power, enhanced protective materials and systems, and sensor development. Effort includes continued production processes improvements for superior vision protection; advanced processes for food production; advanced fuze piston actuator production; and advanced transceiver optical module production.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding is being realigned to support the production of the low cost chip scale atomic clock, directed energy production, and cannon tube modernization efforts within Networks/Command, Control, Communications, and Intelligence portfolio and the Weapons portfolio. The Warfighter Tactical Power Converter, XM1184/85 Projectile Cost and Risk Reduction, Silicon Anode Battery, and Low-Light Level Imagers efforts are being transitioned to the program management offices for further integration and scale up efforts.</p> <p>Title: SIBR & STTR Adjustment</p> <p>FY 2023 Plans: Funding transferred in accordance with Title 15 USC §638</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC §638</p> | - | 3.137 | - |
| Accomplishments/Planned Programs Subtotals | 59.466 | 91.270 | 75.317 |

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

N/A

Remarks

Not applicable for this item.

D. Acquisition Strategy

Not applicable for this item.

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| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | Project (Number/Name) E25 / Mfg Science & Tech | |

| | FY 2015 | | | | FY 2016 | | | | FY 2017 | | | | FY 2018 | | | | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | |
|-----|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|-----|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | Project (Number/Name) E25 / Mfg Science & Tech |

Schedule Details

| Events | Start | | End | |
|--------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| N/A | 1 | 2016 | 4 | 2019 |

Note
N/A

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| | | | | | | | | | | | | |
|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | | | | | | | | | Date: March 2023 | | |
| Appropriation/Budget Activity 2040 / 7 | | | | | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | | | | Project (Number/Name) EA2 / MANTECH INITIATIVES (CA) | | | |
| COST (\$ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
| EA2: MANTECH INITIATIVES (CA) | - | 42.000 | 41.000 | - | - | - | - | - | - | - | 0.000 | 83.000 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

Note

Congressional Interest Item funding provided for ManTech Initiatives.

A. Mission Description and Budget Item Justification

Congressional Interest Item funding provided for ManTech Initiatives.

This effort accelerates manufacturing technology for more affordable electronic warfare, communications and sensors systems components and subsystems to include radio frequency amplifiers, antennas, and focal plane arrays. This effort accelerates and supplements manufacturing technology for more affordable components and subsystems for tactical and combat vehicles and weapon systems. Work focuses benefit from working to develop and scale up the manufacturing process for nano-tungsten carbide powders and high-volume single-crystal tungsten rod manufacturing processes. This effort accelerates and supplements manufacturing technology for more advanced manufacturing and enterprise solutions. Work focuses on accelerating model based manufacturing to specific organic Army facilities and novel ways of applying additive manufacturing and monitoring material powder beds and process controls during additive manufacturing part build for weapon system components.

B. Accomplishments/Planned Programs (\$ in Millions)

| | FY 2022 | FY 2023 |
|---|----------------|----------------|
| Congressional Add: Scalability of Functional Fabric Manufacturing - Continued | 5.000 | - |
| FY 2022 Accomplishments: Continue to do assessments for product integration and scaling as appropriate for with commercial manufacturing partners. Specific efforts in FY22 will include system development for commercial prototype build to a maturity readiness level of 6; system validation and testing; in-house operational experiments and prototype testing. | | |
| Congressional Add: Nanoscale Materials Manufacturing- Continued | 5.000 | - |
| FY 2022 Accomplishments: Continue to scale up Nanoscale materials for manufacturing improvements and industrial based preparedness for critical component materials and armaments systems. Specific efforts will include the application of Tungsten Carbide for small to medium caliber penetrators to improve performance; optimization of Boron Carbide for application on ballistic protection and lightweight body borne plates; and advancement of critical materials (e.g. tantalum, niobium, etc.) for future applications (e.g. additive, hypervelocity, etc). Beneficiaries of this technology will be PEO Soldier and JPEO Armaments and Ammunition, and applied to maneuver ammunition systems, soldier lethality. | | |
| Congressional Add: Advanced Manufacturing Cell for Missile Fins | 8.000 | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | Project (Number/Name) EA2 / MANTECH INITIATIVES (CA) |
| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 |
| FY 2022 Accomplishments: Develop manufacturing process for missile fin casting. FY22 efforts will specifically work on improving shell mold throughput; enhance melting and mold preheat; enhance core removal; and automate defect location and removal. Beneficiaries of this technology will be PEO Missile and Space, PM Strategic and Operational Rockets and Missiles. This technology will integrate into the Army Tactical Missile System and Precision Strike Missile. | | |
| Congressional Add: Liquid Hydrogen Refueling Systems FY 2022 Accomplishments: Developed Manufacturing processes for multiple Portable Liquid Hydrogen Refueling Ground Support Equipment (GSE) Systems for the Army's PM Counter Unmanned Aerial Systems (UAS). As the technology advances, hydrogen fuel cells will provide energy for a range of stationery and mobile applications. These efforts will specifically develop and demonstrate autonomous liquid hydrogen refueling by; proving that manufacturing, producing, storing and using hydrogen fueling systems will play an important role in driving further development of renewable energy, by balancing their intermittent supply modalities with the challenging end-user demands. FY 2023 Plans: Furthers efforts executed under FY22 \$10,000K for liquid hydrogen refueling systems. Use advanced manufacturing and lighter weight materials to fabricate cost-effective high-quality diamond materials for use in cryogenic quantum system payload development, improve integrated liquid hydrogen aircraft and cryogenic quantum system payload performance, and portable liquid hydrogen refueling Ground Support Equipment (GSE) System for Unmanned Aerial Vehicles carrying advanced cryogenic quantum systems payloads at an Army base for flight demonstration. Will characterize the quantum diamond materials using the most advanced Positron Annihilation Spectroscopy. Will assemble and test advanced diamond-based cryogenic quantum system payload. Effort will also conduct aircraft and quantum system ground testing and flight test demonstrations of the integrated liquid hydrogen aircraft and cryogenic quantum systems payload to validate advanced manufacturing methods and techniques. | 10.000 | 10.000 |
| Congressional Add: N2O5 FY 2022 Accomplishments: Develop manufacturing process to use dinitrogen pentoxide (N2O5) in the manufacture of explosives reducing manufacturing costs and reducing chromium-contaminated ammonium nitrate solution (ANSOL) waste byproducts that must be treated as hazardous waste and has a high remediation cost in their disposal. Effort culminated in a pilot scale skid system for electrochemical synthesis of N2O5. FY 2023 Plans: Furthers efforts executed under FY22 \$10,000K Program Increase "N2O5" to develop continuous and on demand supply of dinitrogen pentoxide (N2O5) nitration technology for manufacture of RDX & HMX. Design and demonstrate separate pilot scale continuous manufacturing of Hydroxyl-terminated | 10.000 | 10.000 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | Project (Number/Name) EA2 / MANTECH INITIATIVES (CA) |
| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2022 | FY 2023 |
| Polybutadiene (HTPB) leveraging previous investment and lessons learned from N2O5 work. Hydroxyl-Terminated Polybutadiene (HTPB) will be utilized to coat energetics produced via N2O5 technology for various DoD Propellant (Rocket and Gun) and HE applications. Successful development of this effort will impact the following Army programs of record: 155mm Artillery HE XM1113 Projectile; 155mm Artillery HE XM1210 Projectile; (ERCA)155mm Artillery HE XM1128 Projectile; 155mm HE M982A1 Excalibur Projectile; (ERCA);BLU-111 / Mk 84; BLU-117 B/B; BLU-121 A/B; BLU-122/B; M1061 60mm Mortar; ERCA (Super Charge Propellant). | | |
| Congressional Add: Lightweight Transparent Film Armor FY 2022 Accomplishments: Conducted optimization trials for integrated manufacturing process and begin flat UOPP film and laminate evaluations. This effort is developing a domestic source supporting manufacturing technology critical to the US Army. FY22 efforts culminated in sheet and resin processing equipment being installed. FY 2023 Plans: Further efforts executed under FY22 \$4,000K. Setup and continue development of a new transparent film material focusing on resin processing and sheet extrusion to optimize optical, ballistic, and environmental properties. Continue development of new transparent film material for integration into lighter, thinner transparent armor for face shields, visors, and vehicle armor. The transition path for this effort will be for PM Soldier Protective Equipment for the Cupola? protective ensemble. | 4.000 | 5.000 |
| Congressional Add: Improved Additive Manufacturing Qualifications Methods for Army Aviation FY 2023 Plans: This effort will develop a statistically-backed, model-based, and data-driven framework will reduce the need for additional fabrications/tests for qualification of separate machines through the validated equivalency structure. Evaluate how data generated by a single additive manufacturing (AM) platform can be transmitted to a separate AM machine to increase qualification efficiency. Develop a statistically-backed, model-based, and data-driven framework will reduce the need for additional fabrications/tests for qualification of separate machines through the validated equivalency structure. New standards will be generated and improve on current standards, which allow a more efficient data sharing and qualification practice with DoD and defense contractors. With the improvement of AM Qualification Methods, standing up AM machines or switching between legacy aircraft components (i.e. UH-60, etc.) or FVL will be more efficient and increase fleet readiness. | - | 10.000 |
| Congressional Add: Isostatic Pressure Armor FY 2023 Plans: This effort will accelerate the development of advance armor composites with applications to Soldier and Vehicle protection. | - | 6.000 |
| Congressional Adds Subtotals | 42.000 | 41.000 |

UNCLASSIFIED

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| Exhibit R-2A, RDT&E Project Justification: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | Project (Number/Name) EA2 / MANTECH INITIATIVES (CA) |

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

N/A

Remarks

D. Acquisition Strategy

N/A

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| | | | |
|--|---|--|-------------------------|
| Exhibit R-4, RDT&E Schedule Profile: PB 2024 Army | | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | Project (Number/Name) EA2 / MANTECH INITIATIVES (CA) | |

| | FY 2015 | | | | FY 2016 | | | | FY 2017 | | | | FY 2018 | | | | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | |
|-----|------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| N/A | [REDACTED] | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | FY 2026 | | | | FY 2027 | | | | FY 2028 | | | |
|-----|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|--|
| Exhibit R-4A, RDT&E Schedule Details: PB 2024 Army | | Date: March 2023 |
| Appropriation/Budget Activity 2040 / 7 | R-1 Program Element (Number/Name) PE 0708045A / End Item Industrial Preparedness Activities | Project (Number/Name) EA2 / MANTECH INITIATIVES (CA) |

Schedule Details

| Events | Start | | End | |
|--------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| N/A | 1 | 2016 | 4 | 2016 |