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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Army **Date:** February 2020

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| Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i> | R-1 Program Element (Number/Name) PE 0604645A / <i>Armored Systems Modernization (ASM) - Eng Dev</i> |
|--|--|

| COST (\$ in Millions) | Prior Years | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | - | 359.017 | 285.136 | 135.488 | - | 135.488 | 123.143 | 37.203 | 56.879 | 71.421 | 0.000 | 1,068.287 |
| EV8: <i>Mobile Protected Firepower</i> | - | 359.017 | 285.136 | 135.488 | - | 135.488 | 123.143 | 37.203 | 56.879 | 71.421 | 0.000 | 1,068.287 |

A. Mission Description and Budget Item Justification

Infantry Brigade Combat Teams (IBCTs) lack the mobile, protected firepower capability necessary to defeat enemy prepared positions, destroy enemy armored vehicles, close with the enemy through fire and maneuver, and ensure freedom of maneuver and action in close contact with the enemy. Mobile Protected Firepower (MPF) will provide the protected, long range, precision direct-fire capability to ensure freedom of movement during offensive operations and defeat attacking enemy during defensive operations. This program supports the Next Generation Combat Vehicle (NGCV) Cross Functional Team (CFT).

| B. Program Change Summary (\$ in Millions) | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 373.337 | 310.152 | 135.619 | - | 135.619 |
| Current President's Budget | 359.017 | 285.136 | 135.488 | - | 135.488 |
| Total Adjustments | -14.320 | -25.016 | -0.131 | - | -0.131 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | -25.016 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -14.320 | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Adjustments to Budget Years | - | - | -0.131 | - | -0.131 |

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| Appropriation/Budget Activity 2040 / 5 | R-1 Program Element (Number/Name) PE 0604645A / Armored Systems Modernization (ASM) - Eng Dev | Project (Number/Name) EV8 / Mobile Protected Firepower |
|--|--|--|

| COST (\$ in Millions) | Prior Years | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| EV8: Mobile Protected Firepower | - | 359.017 | 285.136 | 135.488 | - | 135.488 | 123.143 | 37.203 | 56.879 | 71.421 | 0.000 | 1,068.287 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

Infantry Brigade Combat Teams (IBCTs) lack the mobile, protected firepower capability necessary to defeat enemy prepared positions, destroy enemy armored vehicles, close with the enemy through fire and maneuver, and ensure freedom of maneuver and action in close contact with the enemy. Mobile Protected Firepower (MPF) will provide the protected, long range, precision direct-fire capability to ensure freedom of movement during offensive operations and defeat attacking enemy during defensive operations. This program supports the Next Generation Combat Vehicle (NGCV) Cross Functional Team (CFT).

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

| | FY 2019 | FY 2020 | FY 2021 |
|---|---------|---------|---------|
| <p>Title: Product Development</p> <p>Description: MPF Middle Tier Acquisition (MTA) Rapid Prototyping, to include integration engineering, prototype builds, technical support to government test, and logistics products development efforts contracted to BAE Systems and General Dynamics Land Systems (GDLS).</p> <p>FY 2020 Plans: Continued MTA Rapid Prototyping efforts, built completion of 24 prototypes and 4 Ballistic Hull & Turret (BH&T) assets. Fiscal Year (FY) 2020 efforts also included Technical Manual (TM) and Training Support Package (TSP) development, system protection, survivability, and subsystem performance analyses, engineering and logistics support necessary to conduct BH&T test and Soldier Vehicle Assessment (SVA) readiness reviews, and root cause analysis, corrective action implementation, and test asset maintenance to support BH&T testing and Pre-Production Testing (PPT).</p> <p>FY 2021 Plans: Continuation of MTA Rapid Prototyping efforts, to include TM and TSP development, spare parts provisioning, Repair Parts and Special Tools List (RPSTL) creation, and development of plans to enable execution of the FY 2022 MPF Supportability Assessment (SA). FY 2021 product development actions will also include manufacturing readiness maturation efforts, engineering and logistics support to integrate emerging, mature technologies to meet system requirements, and test failure root cause analysis, corrective action application, user training, and test asset maintenance for PPT, SVA, and the Limited User Testing (LUT).</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease from FY 2020 to FY 2021 is due to completion of resourcing of MPF prototype builds in FY 2020.</p> | 345.944 | 243.099 | 90.860 |
| <p>Title: Government Test and Evaluation (Performance Testing)</p> | 2.806 | 12.895 | 19.702 |

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| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|----------------|----------------|----------------|
| <p>Description: During the MPF Rapid Prototyping phase, the Government will execute performance testing on 16 prototypes (eight per contractor) and four BH&T assets (two per contractor). Performance testing during the Rapid Prototyping phase will include BH&T survivability testing and PPT, which consists of vehicle-level lethality, Reliability, Availability, and Maintainability (RAM), and electromagnetic compatibility and interference testing. PPT will also contain an initial cybersecurity evaluation.</p> <p>BH&T testing will provide Force Protection and vehicle-level survivability data while PPT will provide vehicle-level automotive, lethality, and RAM performance data. The results of Rapid Prototyping performance testing will inform the planned FY 2022 Milestone C decision.</p> <p>FY 2020 Plans: In FY 2020, BH&T was completed at Aberdeen Test Center (ATC). BH&T testing provided preliminary ballistic penetration and selected vulnerability data.</p> <p>FY 2020 PPT, to include safety, automotive performance, fire control, lethality, and RAM tests, was conducted at ATC and Yuma Test Center (YTC). Safety testing assessed automotive, weapon, and software safety, while automotive testing assessed system weight, center of gravity, human factors, transportability, acceleration, maximum speed, fuel consumption, and ability to traverse slopes, obstacles, and water. Fire control and lethality testing assessed accuracy, frequency response, sight performance, target handoff, and control and communications, while RAM testing will evaluate system reliability, availability, and maintainability metrics.</p> <p>Government test activities were necessary to perform FY 2020 BH&T testing and PPT, to include conduct of Test Readiness Reviews (TRR), integration and installation of instrumentation, execution of test events, collection and storage of data, processing of Test Incident Reports (TIR), and Failure Analysis and Corrective Action (FACAR) resolution.</p> <p>FY 2021 Plans: In FY 2021, PPT will be completed, to include all safety, automotive performance, fire control, lethality, RAM, and electromagnetic environmental effects (E3) testing in addition to an initial cybersecurity assessment.</p> <p>Safety testing will assess automotive, weapon, and software safety, while automotive testing will assess system weight, center of gravity, human factors, transportability, acceleration, maximum speed, fuel consumption, and ability to traverse slopes, obstacles, and water. Fire control and lethality testing will assess accuracy, frequency response, sight performance, target handoff, and control and communications. RAM testing will evaluate system reliability, availability, and maintainability metrics while E3 testing will measure system electromagnetic compatibility, interference, and safety. The initial cybersecurity assessment will evaluate system cybersecurity and resilience.</p> | | | |

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| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|--|----------------|----------------|----------------|
| <p>Government test activities necessary to perform FY 2021 PPT include the integration and installation of instrumentation, execution of test events, collection and storage of data, processing of Test Incident Reports (TIR), and Failure Analysis and Corrective Action (FACAR) resolution.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase from FY 2020 to FY 2021 is due to volume of performance testing planned for FY 2021 (12 months) versus FY 2020 (6 months).</p> | | | |
| <p>Title: Government Test and Evaluation (Operational Testing)</p> <p>Description: During the MPF Rapid Prototyping phase, the Government will execute operational testing on eight prototypes (four per contractor) through a Limited User Test (LUT). The LUT will provide early data regarding the operational effectiveness and suitability of the MPF.</p> <p>FY 2021 Plans: In FY 2021, the Government will complete a LUT to assess the MPF system's operational effectiveness and suitability. The LUT will include eight prototype systems (four per contractor) and will be conducted at Ft. Bragg, NC. Government activities necessary to complete the LUT include test planning, system instrumentation, test execution, maintenance of opposing force vehicles, and test report development.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase from FY 2020 to FY 2021 is due to the execution of LUT in FY 2021.</p> | - | - | 8.700 |
| <p>Title: Soldier Vehicle Assessment (SVA)</p> <p>Description: The SVA will place eight prototype vehicles (four per contractor) into the hands of soldiers to develop MPF Tactics, Techniques, and Procedures (TTPs), assess Doctrine, Organization, Training materiel Leadership and educational Personal Facilities and Policy (DOTmLPPF-P) domains, collect data to support preparations for the FY 2021 LUT, and inform future MPF Product Improvements. SVA force-on-force and maneuver exercises will be conducted at Ft. Bragg, NC while SVA gunnery events will be at Ft. Campbell, KY.</p> <p>FY 2020 Plans: In FY 2020, the Government completed preparatory activities for SVA, to include finalization of the detailed data collection plan and early TTP development.</p> <p>FY 2021 Plans:</p> | - | 0.817 | 2.407 |

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| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2019 | FY 2020 | FY 2021 |
| <p>In FY 2021, the Government will complete the MPF SVA, to include contractor-led soldier training on the MPF, force-on-force training missions, Platoon and Section Gunnery events, and maneuver Live Fire exercises to assess MPF TTPs and DOTmLPPF-P domains.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase from FY 2020 to FY 2021 is due to SVA execution initiating in FY 2021.</p> | | | | |
| <p>Title: Training Aids and Devices Development</p> <p>Description: Development of aids and devices to facilitate institutional training for MPF operators and maintainers. MPF training aids and devices will include Hands on Trainers (HOT), Diagnostic/Troubleshooting Trainers (DTT), Part Task Trainers (PTT), an Advanced Gunnery Training System (AGTS), and an MPF Combat Vehicle Tactical Engagement Simulation System (CVTESS). MPF aids and devices will be interoperable/compatible with the Army's current live Tactical Engagement Simulation (TES) systems, instrumentation systems, Common Training Instrumentation Architecture (CTIA), Live, Virtual Constructive-Integrated Architecture (LVC-IA) training enablers, and the future Synthetic Training Environment (STE).</p> <p>FY 2020 Plans: In FY 2020, an assessment of MPF prototype designs was conducted to inform refinements of training device requirements. Additionally, development of contract performance specifications for the suite of MPF training devices was initiated.</p> <p>FY 2021 Plans: FY 2021 efforts plan to include finalization of contract performance specifications for the suite of MPF training devices and the development of a familiarization trainer in support of the MPF Limited User Test (LUT).</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase from FY 2020 to FY 2021 is due to the FY 2021 effort to develop a familiarization trainer for the MPF LUT.</p> | | 0.135 | 0.140 | 0.308 |
| <p>Title: Government Engineering and Project Management</p> <p>Description: Government program management and system engineering support, to include salaries, travel, training, supplies, facilities, equipment, and support contractors necessary to manage the MPF MTA Rapid Prototyping effort.</p> <p>FY 2020 Plans: Engineering, logistics, product assurance and test, financial management, acquisition, and operations support for MPF MTA Rapid Prototyping activities from January 2020 through October 2020. Includes salaries, training, travel, supplies, facilities, and equipment to manage MPF integration design, prototype build, test and evaluation, logistics products development, Soldier touch-point feedback collection and analysis, and system vulnerability assessment efforts.</p> <p>FY 2021 Plans:</p> | | 9.866 | 12.292 | 13.511 |

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| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2019 | FY 2020 | FY 2021 |
| <p>To continue the engineering, logistics, product assurance and test, financial management, acquisition, and operations support for the MPF MTA Rapid Prototyping activities from November 2020 through October 2021. Will include salaries, training, travel, supplies, facilities, and equipment to manage MPF test and evaluation, logistics products development, Soldier touch-point feedback collection and analysis, system vulnerability and environmental impact assessments, and future capability enhancement acquisition strategy development.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase in FY 2021 due to the number of months of support provided in the FY 2021 request (12 months) versus the FY 2020 budget (10 months). The FY 2020 budget supports only 10 months to eliminate program management carryover in the future.</p> | | | | |
| <p>Title: Government Support to Product Development</p> <p>Description: Government support to MPF MTA Rapid Prototyping efforts, to include Source Selection activities and Large Caliber Weapon System development.</p> <p>FY 2020 Plans: Completion of Large Caliber Weapon System development, to include finalization of the Technical Data Package (TDP) and completion of safety confirmation testing necessary to obtain weapon system safety release for the SVA and a materiel release to enable system fielding to Army IBCTs.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Decrease from FY 2020 to FY 2021 is due to the completion of engineering support necessary to complete the Large Caliber Weapon TDP and safety confirmation testing.</p> | | 0.266 | 4.190 | - |
| <p>Title: FY 2020 SBIR/STTR Transfer</p> <p>Description: Funding transferred in accordance with Title 15 USC ?638</p> <p>FY 2020 Plans: Funding transferred in accordance with Title 15 USC ?638</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC ?638</p> | | - | 11.703 | - |
| Accomplishments/Planned Programs Subtotals | | 359.017 | 285.136 | 135.488 |

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

| Line Item | FY 2019 | FY 2020 | FY 2021 | FY 2021 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|------------|
| | | | Base | OCO | Total | | | | | Complete | Total Cost |
| • G80820: Mobile Protected Firepower | - | - | 0.000 | - | 0.000 | 351.262 | 339.276 | 571.731 | 559.892 | 4,458.219 | 6,280.380 |

Remarks

Standard Serial Number (SSN) G80820 resources production of MPF. FY 2022 - FY 2023 resourcing supports MPF Low Rate Initial Production (LRIP) while FY 2024 - FY 2025 resourcing supports MPF Full Rate Production (FRP).

D. Acquisition Strategy

The MPF RFP was issued on 21 November 2017 as a full and open, best value competitive action. On 25 September 2018, the Army Acquisition Executive (AAE) approved the execution of MPF Rapid Prototyping activities under Section 804 of the 2016 National Defense Authorization Act (NDAA) (Public Law 114-92), Middle Tier Acquisition (Rapid Prototyping). The competitive selection process for MPF Rapid Prototyping contracts included the evaluation of written proposals and optional bid samples to provide additional substantiating data for Source Selection Evaluation. On 17 December 2018, two MPF Rapid Prototyping contracts were awarded, one to BAE Land Systems and the other to General Dynamics Land Systems (GDLS). Upon AAE Milestone C approval in 3rd Quarter (3Q) FY 2022, a Source Selection Evaluation will be finalized to down-select to a single contractor for a Fixed Price Incentive (FPI) Low-Rate Initial Production (LRIP) effort. An MPF FRP decision is targeted for 3Q FY 2025.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army **Date:** February 2020

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| Appropriation/Budget Activity 2040 / 5 | R-1 Program Element (Number/Name) PE 0604645A / Armored Systems Modernization (ASM) - Eng Dev | Project (Number/Name) EV8 / Mobile Protected Firepower |
|--|--|--|

| Management Services (\$ in Millions) | | | | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 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 Engineering and Project Management | MIPR | Various : Warren, MI; Picatinny, NJ | 16.015 | 9.866 | Dec 2018 | 12.292 | Dec 2019 | 13.511 | Nov 2020 | - | | 13.511 | 28.209 | 79.893 | - |
| FY 2020 SBIR/STTR Transfer | TBD | Various : Various | - | - | | 11.703 | | - | | - | | - | 0.000 | 11.703 | - |
| Subtotal | | | 16.015 | 9.866 | | 23.995 | | 13.511 | | - | | 13.511 | 28.209 | 91.596 | N/A |

| Product Development (\$ in Millions) | | | | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 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 - Middle Tier Acquisition (MTA) Rapid Prototyping Contracts | C/FFP | BAE Land Systems; General Dynamics Land Systems (GDLS) : Sterling Heights, MI; Sterling Heights, MI | 14.667 | 345.118 | Dec 2018 | 243.099 | Dec 2019 | 90.860 | Dec 2020 | - | | 90.860 | 210.722 | 904.466 | 905.941 |
| Product Development - Government Furnished Material (GFM) Procurement | Various | Various : Various | 1.285 | 0.826 | Feb 2019 | 0.005 | Jan 2020 | - | | - | | - | 0.000 | 2.116 | - |
| Subtotal | | | 15.952 | 345.944 | | 243.104 | | 90.860 | | - | | 90.860 | 210.722 | 906.582 | N/A |

Remarks
 Product Development - Middle Tier Acquisition (MTA) Rapid Prototyping Contracts Remark: MTA Rapid Prototyping contract costs are inclusive of both competitors during the Mobile Protected Firepower (MPF) MTA Rapid Prototyping Phase (1Q FY 2019 - 3Q FY 2022) and a single vendor after down-select for Low-Rate Initial Production (LRIP) at Milestone C (3Q FY 2022). Contract product development efforts during the LRIP phase include retrofit of prototypes to LRIP configuration, production of 3 LRIP vehicles for Full Up System Live Fire (FUSL) test, technical support to Government Production Qualification Test (PQT) and Initial Operational Test and Evaluation (IOT&E), and completion of system log products.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Army | | | | | | | | | | | | Date: February 2020 | | | |
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| Appropriation/Budget Activity | | | | R-1 Program Element (Number/Name) | | | | | Project (Number/Name) | | | | | | |
| 2040 / 5 | | | | PE 0604645A / Armored Systems Modernization (ASM) - Eng Dev | | | | | EV8 / Mobile Protected Firepower | | | | | | |
| Support (\$ in Millions) | | | | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 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 Support to Product Development - Large Caliber Weapon System Development | PO | Armament Research, Development and Engineering Center (ARDEC); Watervliet Arsenal (WVA); Rock Island Arsenal (RIA) : Picatinny, NJ; Watervliet, NY; Rock Island, IL | 7.697 | 0.266 | Jan 2019 | 4.190 | Jan 2020 | - | | - | | - | 0.000 | 12.153 | - |
| Government Support to Product Development - Source Selection Evaluation Board (SSEB) | Various | Various : Various | 5.003 | - | | - | | - | | - | | - | 0.000 | 5.003 | - |
| Training Aids and Devices Development | Various | Program Executive Office Simulation, Training and Instrumentation (PEO STRI) : Orlando, FL | - | 0.135 | Aug 2019 | 0.140 | Jan 2020 | 0.307 | Jan 2021 | - | | 0.307 | 4.866 | 5.448 | - |
| Subtotal | | | 12.700 | 0.401 | | 4.330 | | 0.307 | | - | | 0.307 | 4.866 | 22.604 | N/A |
| Test and Evaluation (\$ in Millions) | | | | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 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 and Evaluation (Performance Test, Operational Test, Soldier Vehicle Assessment) | PO | Aberdeen Test Center (ATC); Yuma Test Center (YTC) : Aberdeen, MD; Yuma, AZ | 6.766 | 2.806 | Mar 2019 | 13.707 | Jan 2020 | 30.810 | Nov 2020 | - | | 30.810 | 44.849 | 98.938 | - |
| Subtotal | | | 6.766 | 2.806 | | 13.707 | | 30.810 | | - | | 30.810 | 44.849 | 98.938 | N/A |

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| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | FY 2021 OCO | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
| Project Cost Totals | 51.433 | 359.017 | | 285.136 | | 135.488 | - | 135.488 | 288.646 | 1,119.720 | N/A |

Remarks

Fiscal Year (FY) 2019 funding supported the award of two Rapid Prototyping contracts to design and build 24 total Mobile Protected Firepower (MPF) prototypes (12 per vendor) and four Ballistic Hull & Turrets (two per vendor), the execution of armor coupon testing, and the completion of planning for FY 2020 Ballistic Hull & Turret (BH&T) test and Pre-Production Test (PPT). FY 2020 funding supported final assembly and delivery of MPF prototypes and BH&T assets, BH&T testing, PPT, and development of MPF Technical Manuals (TM) and Training Support Packages (TSP). FY 2021 funding will support completion of PPT and Limited User Testing (LUT) in addition to continuing development of MPF Logistics Products (Technical Manuals, Training Support Package, Repair Parts and Special Tools List).

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| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army | | Date: February 2020 |
| Appropriation/Budget Activity 2040 / 5 | R-1 Program Element (Number/Name) PE 0604645A / Armored Systems Modernization (ASM) - Eng Dev | Project (Number/Name) EV8 / Mobile Protected Firepower |

| Event Name | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|----|
| | 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 |
| Milestone C (MS C) | | | | | | | | | | | | | | | 5 | | | | | | | | | | | | | |
| Full Rate Production (FRP) Decision | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 |
| Full Material Release (FMR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 |
| First Unit Equipped (FUE) | | | | | | | | | | | | | | | | | | | | | | | | | | | | 12 |
| Risk Reduction of Large Caliber Weapon System | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Middle Tier Acquisition (MTA) Source Selection Evaluation Board (SSEB) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rapid Prototyping Contract Awards | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mobile Protected Firepower (MPF) Rapid Prototyping Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Design Maturity Review (DMR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ballistic Hull & Turret (BH&T) Deliveries (4 BH&Ts) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BH&T Test Readiness Review (TRR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BH&T Test | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Prototype Deliveries (24 Prototypes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army | | Date: February 2020 |
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| Event Name | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------------|---|---|---|-----------------|---|---|---|---------|---|---|---|
| | 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 |
| Pre-Production Test (PPT) | | | | | PPT | | | | | | | | | | | | | | | | | | | | | | | |
| Soldier Vehicle Assessment (SVA) Readiness Review (RR) | | | | | SVA RR | | | | | | | | | | | | | | | | | | | | | | | |
| SVA | | | | | | | | | SVA | | | | | | | | | | | | | | | | | | | |
| Limited User Training (LUT) | | | | | | | | | | | | | LUT | | | | | | | | | | | | | | | |
| Training Support Package (TSP) Development | TSP Development | | | | TSP Development | | | | TSP Development | | | | TSP Development | | | | | | | | | | | | | | | |
| Maintenance Task Analysis (MTA) and Level Of Repair Analysis (LORA) | MTA and LORA | | | | MTA and LORA | | | | MTA and LORA | | | | MTA and LORA | | | | | | | | | | | | | | | |
| Technical Manual (TM) Development | TM Development | | | | TM Development | | | | TM Development | | | | TM Development | | | | | | | | | | | | | | | |
| TM Validation | | | | | | | | | TM Validation | | | | | | | | | | | | | | | | | | | |
| TM Development Update | | | | | | | | | | | | | | | | | TM Development Update | | | | | | | | | | | |
| TM Verification | | | | | | | | | | | | | | | | | | | | | TM Verification | | | | | | | |
| Supportability Assessment (SA) | | | | | | | | | | | | | Supportability Assessment (SA) | | | | | | | | | | | | | | | |
| Logistics Demonstration (Log Demo) | | | | | | | | | | | | | | | | | | | | | Log Demo | | | | | | | |
| Training Devices Requirements Refinement Performance Spec Development | Train Devices Req and Perf Spec Development | | | | Train Devices Req and Perf Spec Development | | | | Train Devices Req and Perf Spec Development | | | | Train Devices Req and Perf Spec Development | | | | | | | | | | | | | | | |

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| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army | | | Date: February 2020 | | |
| Appropriation/Budget Activity 2040 / 5 | | R-1 Program Element (Number/Name) PE 0604645A / Armored Systems Modernization (ASM) - Eng Dev | | Project (Number/Name) EV8 / Mobile Protected Firepower | |

| Event Name | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Training Devices Product Development | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Rate Initial Production (LRIP) Option #1 Award | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LRIP Option #1 Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LRIP Option #2 Award | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LRIP Option #2 Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Initial Operational Test and Evaluation (IOT&E) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FRP Lot #1 Early Order Material (EOM) Award | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FRP Lot #1 Assembly Award | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FRP Lot #1 Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army | | Date: February 2020 |
| Appropriation/Budget Activity 2040 / 5 | R-1 Program Element (Number/Name) PE 0604645A / Armored Systems Modernization (ASM) - Eng Dev | Project (Number/Name) EV8 / Mobile Protected Firepower |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Section 804 MTA Rapid Prototyping Designation | 4 | 2018 | 4 | 2018 |
| Milestone C (MS C) | 3 | 2022 | 3 | 2022 |
| Full Rate Production (FRP) Decision | 3 | 2025 | 3 | 2025 |
| Full Material Release (FMR) | 3 | 2025 | 3 | 2025 |
| First Unit Equipped (FUE) | 4 | 2025 | 4 | 2025 |
| Request for Proposal (RFP) Release | 1 | 2018 | 1 | 2018 |
| Risk Reduction of Large Caliber Weapon System | 3 | 2017 | 4 | 2020 |
| Middle Tier Acquisition (MTA) Source Selection Evaluation Board (SSEB) | 2 | 2018 | 1 | 2019 |
| Rapid Prototyping Contract Awards | 1 | 2019 | 1 | 2019 |
| Mobile Protected Firepower (MPF) Rapid Prototyping Phase | 1 | 2019 | 3 | 2022 |
| Design Maturity Review (DMR) | 3 | 2019 | 3 | 2019 |
| Ballistic Hull & Turret (BH&T) Deliveries (4 BH&Ts) | 3 | 2020 | 4 | 2020 |
| BH&T Test Readiness Review (TRR) | 2 | 2020 | 2 | 2020 |
| BH&T Test | 3 | 2020 | 1 | 2021 |
| Prototype Deliveries (24 Prototypes) | 2 | 2020 | 2 | 2021 |
| Pre-Production Test (PPT) | 2 | 2020 | 4 | 2021 |
| Soldier Vehicle Assessment (SVA) Readiness Review (RR) | 4 | 2020 | 4 | 2020 |
| SVA | 1 | 2021 | 3 | 2021 |
| Limited User Training (LUT) | 4 | 2021 | 4 | 2021 |
| Training Support Package (TSP) Development | 2 | 2019 | 3 | 2022 |
| Maintenance Task Analysis (MTA) and Level Of Repair Analysis (LORA) | 2 | 2019 | 3 | 2022 |
| Technical Manual (TM) Development | 2 | 2019 | 3 | 2022 |

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army **Date:** February 2020

| | | |
|--|--|---|
| Appropriation/Budget Activity 2040 / 5 | R-1 Program Element (Number/Name) PE 0604645A / <i>Armored Systems Modernization (ASM) - Eng Dev</i> | Project (Number/Name) EV8 / <i>Mobile Protected Firepower</i> |
|--|--|---|

| Events | Start | | End | |
|---|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| TM Validation | 3 | 2021 | 3 | 2022 |
| TM Development Update | 1 | 2023 | 1 | 2025 |
| TM Verification | 2 | 2024 | 1 | 2025 |
| Supportability Assessment (SA) | 1 | 2022 | 1 | 2022 |
| Logistics Demonstration (Log Demo) | 1 | 2024 | 1 | 2024 |
| Training Devices Requirements Refinement Performance Spec Development | 2 | 2019 | 4 | 2021 |
| Training Devices Product Development | 3 | 2022 | 3 | 2025 |
| Low Rate Initial Production (LRIP) Option #1 Award | 4 | 2022 | 4 | 2022 |
| LRIP Option #1 Deliveries | 1 | 2024 | 1 | 2025 |
| LRIP Option #2 Award | 3 | 2023 | 3 | 2023 |
| LRIP Option #2 Deliveries | 4 | 2024 | 4 | 2025 |
| Initial Operational Test and Evaluation (IOT&E) | 4 | 2024 | 1 | 2025 |
| FRP Lot #1 Early Order Material (EOM) Award | 4 | 2024 | 4 | 2024 |
| FRP Lot #1 Assembly Award | 3 | 2025 | 3 | 2025 |
| FRP Lot #1 Deliveries | 4 | 2025 | 4 | 2026 |