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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2017 Army **Date:** February 2016

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| <b>Appropriation/Budget Activity</b><br>2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 5: System Development &amp; Demonstration (SDD)</i> | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> |
|--|---|

| COST (\$ in Millions)                                  | Prior Years | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element                                  | -           | 53.579  | 55.215  | 39.630       | -           | 39.630        | 33.464  | 32.025  | 46.636  | 41.533  | Continuing       | Continuing |
| 016: <i>Close Combat Capabilities ENG DEV</i>          | -           | 0.000   | 1.629   | 2.772        | -           | 2.772         | 2.000   | 0.000   | 0.000   | 0.000   | 0.000            | 6.401      |
| 415: <i>Mine Neutral/Detection</i>                     | -           | 43.314  | 49.296  | 36.858       | -           | 36.858        | 31.464  | 32.025  | 46.636  | 41.533  | Continuing       | Continuing |
| 434: <i>Anti-Personnel Landmine Alternatives (NSD)</i> | -           | 10.265  | 4.290   | 0.000        | -           | 0.000         | 0.000   | 0.000   | 0.000   | 0.000   | 0.000            | 14.555     |

**Note**

The FY 2017 funding request was reduced by \$2.500 million to account for the availability of prior year execution balances.

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

This program element (PE) provides for the engineering and manufacturing development (EMD) and demonstration of networked munitions, counter mine systems, and counter improvised explosive device capabilities. This PE also implements the National Landmine Policy to develop alternatives to the non-self-destructing counter mobility anti-personnel landmine systems. The PE contributes to area access and area denial (A2/AD) to support unified land operations and improve soldier survivability.

Project 016, Close Combat Capabilities provides for developing improvements to legacy dismounted lane breaching, specifically the Anti-Personnel Obstacle Breaching System (APOBS), and in so doing, provides a pathway to the next generation of dismounted lane breaching systems such as the Rapid Assault Lane Line Charge (RALLC) and the Dismounted Explosive Breaching System (DEBS). The efforts will address capability gaps identified during combat operations and will focus on weight reduction, improved scalability, collateral damage reduction, metallic content elimination, deployment accuracy improvement, and increased effectiveness against the current threat.

Project 415, Mine Neutralization/Detection provides for development of next generation standoff, detection, and neutralization capability programs such as Husky Mounted Detection System (HMDS), Route Clearance & Interrogation System (RCIS), Man-Transportable Robotic System (MTRS)Inc II, Vehicle Optics Sensor System (VOSS), Autonomous Mine Detection System (AMDS), Route Clearance Vehicles (RCV) and Enablers, Multi-Function Video Display (MVD) and Add on Armor (AoA) kits. It also supports development of Explosive Hazard Pre-Detonation (EHP) capability to neutralize/detonate a broad spectrum of improvised explosive hazards while on the move to support area access route clearance missions.

Project 434, Spider Increment 1A will build upon the existing M7 Spider system. The M7 Spider system is a hand-emplaced, remotely controlled (Man-In-The-Loop) system that provides highly responsive terrain-shaping and protection capabilities. M7 Spider replaces persistent anti-personnel landmines, is compliant with US National Landmine policy, and has been fielded to US forces in support of Operation Enduring Freedom and currently being fielded to Engineers and Brigade Combat Teams in the Active and Army National Guard components. Additional capabilities will be developed to enhance the Spider Remote Control Station and demonstrate

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| <b>Appropriation/Budget Activity</b><br>2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 5: System Development &amp; Demonstration (SDD)</i> | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> |
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the ability to employ legacy Government-Off-The-Shelf (GOTS) lethal and non-lethal anti-personnel (AP) munitions and counter mobility obstacles. Spider Increment 1A will utilize an open system architecture to facilitate future munition integration. Spider Increment 1A completed documentation efforts for the Non-Lethal Launcher (NLL) XM809 and XM810 contract activities in support of Type Classification.

| <b>B. Program Change Summary (\$ in Millions)</b> | <b>FY 2015</b> | <b>FY 2016</b> | <b>FY 2017 Base</b> | <b>FY 2017 OCO</b> | <b>FY 2017 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget                       | 57.674         | 55.215         | 45.750              | -                  | 45.750               |
| Current President's Budget                        | 53.579         | 55.215         | 39.630              | -                  | 39.630               |
| Total Adjustments                                 | -4.095         | 0.000          | -6.120              | -                  | -6.120               |
| • Congressional General Reductions                | -              | -              |                     |                    |                      |
| • Congressional Directed Reductions               | -              | -              |                     |                    |                      |
| • Congressional Rescissions                       | -              | -              |                     |                    |                      |
| • Congressional Adds                              | -              | -              |                     |                    |                      |
| • Congressional Directed Transfers                | -              | -              |                     |                    |                      |
| • Reprogrammings                                  | -1.869         | -              |                     |                    |                      |
| • SBIR/STTR Transfer                              | -2.226         | -              |                     |                    |                      |
| • Adjustments to Budget Years                     | -              | -              | -6.120              | -                  | -6.120               |

**Change Summary Explanation**

FY 2015: Budget supports Project 415, Mine Neutral/Detection, and Project 434, Anti-Personnel Landmine Alternatives (NSD).

FY 2016: Budget supports Project 016, Close Combat Capabilities, Project 415, Mine Neutral/Detection, and Project 434, Anti-Personnel Landmine Alternatives (NSD).

FY 2017: Budget supports Project 016, Close Combat Capabilities, and Project 415, Mine Neutral/Detection.

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army |                    |                |                |                     |  |                      |                |   |                | <b>Date:</b> February 2016 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>2040 / 5                   |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev |                      |                | <b>Project (Number/Name)</b><br>016 / Close Combat Capabilities ENG DEV |                |                            |                         |                   |
| <b>COST (\$ in Millions)</b>                                       | <b>Prior Years</b> | <b>FY 2015</b> | <b>FY 2016</b> | <b>FY 2017 Base</b> | <b>FY 2017 OCO</b>   | <b>FY 2017 Total</b> | <b>FY 2018</b> | <b>FY 2019</b>  | <b>FY 2020</b> | <b>FY 2021</b>             | <b>Cost To Complete</b> | <b>Total Cost</b> |
| 016: Close Combat Capabilities ENG DEV                             | -                  | 0.000          | 1.629          | 2.772               | -  | 2.772                | 2.000          | 0.000   | 0.000          | 0.000                      | 0.000                   | 6.401             |
| Quantity of RDT&E Articles   | -                  | -              | -              | -                   | -  | -                    | -              | -   | -              | -                          |                         |                   |

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

The Close Combat Capabilities Engineering Development project develops improvements to legacy dismounted lane breaching, specifically the Anti-Personnel Obstacle Breaching System (APOBS), and in so doing, provides a pathway to the next generation of dismounted lane breaching systems such as the Rapid Assault Lane Line Charge (RALLC) and the Dismounted Explosive Breaching System (DEBS). These efforts will address capability gaps identified during combat operations and will focus on weight reduction, improved scalability, collateral damage reduction, metallic content elimination, deployment accuracy improvement, and increased effectiveness against the current threat.

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

|  | <b>FY 2015</b> | <b>FY 2016</b> | <b>FY 2017</b> |
|--|----------------|----------------|----------------|
| <b>Title:</b> Dismounted Lane Breaching System   | -              | 1.629          | 2.772          |
| <b>Description:</b> Develops materiel solutions that address operational issues with APOBS related to its weight, lack of scalability, collateral damage, residual metallic debris, deployment accuracy, and effectiveness.                              |                |                |                |
| <b>FY 2016 Plans:</b><br>Perform trade studies/cost-benefit analyses to prioritize user identified capability gaps and the material solutions that address them; Prepare Preliminary Design; Prepare contract Statement of Work (SOW); Draft Test Plans. |                |                |                |
| <b>FY 2017 Plans:</b><br>Finalize design; Award contract for qualification hardware; Build qualification hardware; Finalize test plans; Begin preparation for qualification testing.   |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>  | -              | 1.629          | 2.772          |

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

N/A

**Remarks**

**D. Acquisition Strategy**

The Acquisition strategy is for developing product improvements such as making the system lighter and more module to the Antipersonnel and Obstacle breaching System. These improvements will then be incorporated into the technical data package for future procurements.

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army |   | <b>Date:</b> February 2016   |
| <b>Appropriation/Budget Activity</b><br>2040 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>016 / <i>Close Combat Capabilities ENG DEV</i> |

**E. Performance Metrics**

N/A

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army                   |                        |                                |             |  |            |         |            |   |            |             |            | Date: February 2016 |                  |            |                          |
|--|------------------------|--------------------------------|-------------|--|------------|---------|------------|---|------------|-------------|------------|---------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity  |                        |                                |             | R-1 Program Element (Number/Name)                |            |         |            | Project (Number/Name)                   |            |             |            |                     |                  |            |                          |
| 2040 / 5   |                        |                                |             | PE 0604808A / Landmine Warfare/Barrier - Eng Dev |            |         |            | 016 / Close Combat Capabilities ENG DEV |            |             |            |                     |                  |            |                          |
| Management Services (\$ in Millions)                                     |                        |                                |             | FY 2015  |            | FY 2016 |            | FY 2017 Base                            |            | FY 2017 OCO |            | FY 2017 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 |
| Dismounted Lane Breaching System - Program Management                    | MIPR                   | PM CCS : Picatinny Arsenal, NJ | 0.000       | -  |            | 0.100   |            | 0.300                                   | Nov 2016   | -           |            | 0.300               | Continuing       | Continuing | Continuing               |
| <b>Subtotal</b>  |                        |                                | 0.000       | -  |            | 0.100   |            | 0.300                                   |            | -           |            | 0.300               | -                | -          | -                        |
| Product Development (\$ in Millions)                                     |                        |                                |             | FY 2015  |            | FY 2016 |            | FY 2017 Base                            |            | FY 2017 OCO |            | FY 2017 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 |
| Dismounted Lane Breaching System - Preliminary Design Efforts            | MIPR                   | ARDEC : Picatinny Arsenal, NJ  | 0.000       | -  |            | 1.100   |            | -                                       |            | -           |            | -                   | Continuing       | Continuing | Continuing               |
| Dismounted Lane Breaching System - Qualification Hardware                | C/FFP                  | TBD : TBD                      | 0.000       | -  |            | -       |            | 0.900                                   | May 2017   | -           |            | 0.900               | 0                | 0.900      | 0                        |
| Dismounted Lane Breaching System - Rocket Design                         | MIPR                   | NSWC : Indian Head, MD         | 0.000       | -  |            | -       |            | 0.100                                   | Jan 2017   | -           |            | 0.100               | 0                | 0.100      | 0                        |
| <b>Subtotal</b>  |                        |                                | 0.000       | -  |            | 1.100   |            | 1.000                                   |            | -           |            | 1.000               | -                | -          | -                        |
| Support (\$ in Millions)   |                        |                                |             | FY 2015  |            | FY 2016 |            | FY 2017 Base                            |            | FY 2017 OCO |            | FY 2017 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 |
| Dismounted Lane Breaching System - Trade Studies, SOW and Test Plan Prep | MIPR                   | ARDEC : Picatinny Arsenal, NJ  | 0.000       | -  |            | 0.429   |            | -                                       |            | -           |            | -                   | Continuing       | Continuing | Continuing               |
| Dismounted Lane Breaching System - Logistics, Packaging, System Eng.     | MIPR                   | ARDEC : Picatinny Arsenal, NJ  | 0.000       | -  |            | -       |            | 0.750                                   | Jan 2017   | -           |            | 0.750               | 0                | 0.750      | 0                        |



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army** **Date:** February 2016

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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>016 / Close Combat Capabilities ENG DEV |
|--|--|---|

| Event Name                           | 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 |
| Trade Studies/ Cost Benefit Analyses | Trade Studies/ Cost Benefit Analyses |   |   |   | Trade Studies/ Cost Benefit Analyses |   |   |   |                              |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| SOW/ Test Plan Preparation           |                                      |   |   |   |                                      |   |   |   | SOW/ Test Plan Preparation   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Develop Preliminary Design           |                                      |   |   |   |                                      |   |   |   | Develop Preliminary Design   |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (1) Preliminary Design Review        |                                      |   |   |   |                                      |   |   |   | PDR                          |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Detailed Design Effort               |                                      |   |   |   |                                      |   |   |   | Detailed Design Effort       |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (2) User Assessment                  |                                      |   |   |   |                                      |   |   |   | User Assessment              |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (3) Critical Design Review (CDR)     |                                      |   |   |   |                                      |   |   |   | CDR                          |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Qualification Hardware Build         |                                      |   |   |   |                                      |   |   |   | Qualification Hardware Build |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (4) Test Readiness Review            |                                      |   |   |   |                                      |   |   |   | Test Readiness Review        |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Qualification Testing                |                                      |   |   |   |                                      |   |   |   | Qualification Testing        |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (5) MS C or ECP                      |                                      |   |   |   | MS C or ECP                          |   |   |   |                              |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |

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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2017 Army |   | <b>Date:</b> February 2016   |
| <b>Appropriation/Budget Activity</b><br>2040 / 5              | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>016 / <i>Close Combat Capabilities ENG DEV</i> |

Schedule Details

| Events                               | Start   |      | End     |      |
|--------------------------------------|---------|------|---------|------|
|                                      | Quarter | Year | Quarter | Year |
| Trade Studies/ Cost Benefit Analyses | 2       | 2016 | 2       | 2016 |
| SOW/ Test Plan Preparation           | 3       | 2016 | 3       | 2016 |
| Develop Preliminary Design           | 4       | 2016 | 4       | 2016 |
| Preliminary Design Review            | 4       | 2016 | 4       | 2016 |
| Detailed Design Effort               | 4       | 2016 | 2       | 2017 |
| User Assessment                      | 2       | 2017 | 2       | 2017 |
| Critical Design Review (CDR)         | 3       | 2017 | 3       | 2017 |
| Qualification Hardware Build         | 3       | 2017 | 4       | 2017 |
| Test Readiness Review                | 4       | 2017 | 4       | 2017 |
| Qualification Testing                | 4       | 2017 | 1       | 2018 |
| MS C or ECP                          | 2       | 2018 | 2       | 2018 |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army |                    |                |                |                     |   |                      |                |                |   | <b>Date:</b> February 2016 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>2040 / 5                   |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> |                      |                |                | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |                            |                         |                   |
| <b>COST (\$ in Millions)</b>                                       | <b>Prior Years</b> | <b>FY 2015</b> | <b>FY 2016</b> | <b>FY 2017 Base</b> | <b>FY 2017 OCO</b>  | <b>FY 2017 Total</b> | <b>FY 2018</b> | <b>FY 2019</b> | <b>FY 2020</b>  | <b>FY 2021</b>             | <b>Cost To Complete</b> | <b>Total Cost</b> |
| 415: <i>Mine Neutral/Detection</i>                                 | -                  | 43.314         | 49.296         | 36.858              | -   | 36.858               | 31.464         | 32.025         | 46.636  | 41.533                     | Continuing              | Continuing        |
| Quantity of RDT&E Articles   | -                  | -              | -              | -                   | -   | -                    | -              | -              | -   | -                          |                         |                   |

**Note**

The FY 2017 funding request was reduced by \$2.500 million to account for the availability of prior year execution balances.

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

This Project provides for Engineering Manufacturing and Development (EMD) for the next generation of capabilities to detect, identify and neutralize hybrid threats and explosive hazards such as Improvised Explosive Devices (IEDs) and landmines. These capabilities are a Family of Systems (FOS) encompassing handheld, vehicle mounted, small robotic mounted, aerial platform mounted and area access, and neutralization systems operating in manned, remotely controlled, semi-autonomous or fully autonomous modes. Continued development of this FOS is necessary to support Route Clearance Platoons located within both Engineer Companies and Brigade Engineering Battalion Brigade Combat Teams.

The Husky Mounted Detection System (HMDS) is a counter-explosive device capability that provides standoff detection and marking of metallic and low-metallic surface-laid and shallow-buried antitank landmines, unexploded ordnance, trigger mechanisms, and deep buried metallic improvised explosive devices (IEDs) and metallic encased caches in support of route and area-clearance operations. It provides area access and freedom of movement for the Commander. HMDS is a mission equipment package, mounted on the Husky route clearance vehicle, which consists of Shallow Buried Detection capability, Deep Buried Detection (DBD) capability, and Semi-Autonomous Control (SAC) capability. Program is broken out into three increments. The Shallow Buried capability (Increment A1) will detect and accurately mark a broad spectrum of suspected explosive hazards and trigger mechanisms in a wider range of road surfaces and varying soil conditions. The DBD capability (Increment A2) will detect and accurately mark suspected deep buried metallic Improvised Explosive Devices (IEDs) and metallic encased caches. The SAC capability (Increment B) will enable an operator to remotely and semi-autonomously control all functions of the Husky and HMDS from inside the Mine Protected Clearance Vehicle (MMPV) Type II, improving survivability of the operator during the detection mission. The HMDS Common Operating Group (COG) is comprised of the Common Installation Kits, DBD Trainer, Ground Penetrating Radar (GPR) Trainer, and Wire Detect (WD) Trainer. The Army Acquisition Objective for the components are as follows: GPR trainer (666), GPR (325), WD (325), DBD (175), SAC (325), and COG (666).

The Route Clearance & Interrogation System (RCIS) consists of two semi-autonomous vehicles, designated control vehicles and an Operator Control Unit (OCU) which provide a standoff capability to detect and neutralize the full spectrum of explosive hazards. RCIS Type I and Type II are being procured as separate increments. Type I integrates a semi-autonomous kit onto a High Mobility Engineering Excavator (HMEE) for control remotely from a modified Buffalo Mine Protected Clearance Vehicle (MPCV). RCIS Type I semi-autonomous kit will be integrated onto the HMEE and be capable of interrogating and classifying explosive hazards. Type II integrates a semi-autonomous kit on a route clearance lead Medium Mine Protected Vehicle (MMPV) for operation from another MMPV. The RCIS Type II semi-autonomous kit will be able to detect, neutralize and proof explosive hazards. The OCU will be integrated into both a Buffalo MPCV for Type I and MMPV for Type II. RCIS capabilities will be fielded to Route Clearance Squads and Engineer Platoons.

**UNCLASSIFIED**

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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |
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The Man-Transportable Robotic System (MTRS) Inc II is a modular system providing a multitude of standoff capabilities through different payloads for the Army. These capabilities include detect and confirm presence, identify disposition and counter hazards by providing a platform for payloads in support of current and future mission requirements. Additionally, MTRS Inc II will support current and future payload missions for the engineer's route clearance platoons, Special Operational Forces (SOF) detachments and Chemical Biological Radiological and Nuclear (CBRN) Units. In addition, the Explosive Ordnance Disposal (EOD) TRADOC Capabilities Manager has identified that the EOD will participate in MTRS In II buy.

The Vehicle Optics Sensor System (VOSS) provides a telescoping, gyro-stabilized, high-resolution, triple sensor (daylight, night-vision, and thermal-imaging) surveillance system to optically detect from standoff distances, explosive hazards (IEDs and landmines) and their trigger sources. VOSS will be mounted on the MMPV Type I for Explosive Ordnance Disposal (EOD) and MMPV Type II for Engineers. VOSS will qualify a Geo-location capability, and develop and integrate a new less costly, more reliable, sustainable and durable Infrared (IR) camera.

The Multifunction Video Display (MVD) provides view/control capability of the enablers (Interrogation Arms, VOSS, Man Transportable Robotic System, Drivers Vision Enhancement, Vehicle Situational Awareness Cameras) in the MMPV Type II to all Operators. New capabilities will be added into that display to view and control future Unmanned Ground Vehicle Systems (UGVs) programs Route Clearance & Integration System (RCIS) and Husky Mounted Detection System (HMDS), Explosive Hazard Pre-Detonation (EHP) Roller and view Unmanned Aerial Vehicles video feeds. Additional software will need to be developed to add these capabilities. In addition, a new capability to push the video feeds of all of the enablers (Interrogation Arms, VOSS, Man Transportable Robotic System, Drivers Vision Enhancement and Vehicle Situational Awareness Cameras) from various vehicles within a Route Clearance Patrol will be developed.

Route Clearance Vehicle (RCV) & Enabler Improvements: Develop the hardware used to improve POR RCVs and Enablers

- Develop product upgrades to MMPV Type II Interrogation Arm
- Next Generation HMDS A2 to include Deep Buried Detection on the Husky and semi-autonomous control capability on the Husky and MMPV Type II
- Explosive Hazard Pre-Detonation (EHP) Equipment upgrades

Force Protection Improvements/Add On Armor (AoA) to execute system level design cycle for rocket propelled grenade (RPG) and explosive formed projectiles (EFP) AoA kits for Husky and Buffalo. Explosive Hazard Pre-Detonation (EHP) capability to include a debris blower, Wire Neutralization System (WNS) and Mine Roller to neutralize/detonate a broad spectrum of improvised explosive hazards while on the move, to support route clearance mission.

Autonomous Mine Detection System (AMDS) provides increased survivability through mine and explosive hazards stand-off detection, marking and neutralization capability for the dismounted soldier. It provides area access and freedom of movement for the Commander. AMDS consists of payload modules to be mounted on man-portable unmanned ground vehicles. The payloads are for surface laid and buried threats to include mines and explosive hazards. AMDS transitioned from Technical Development to Engineering and Manufacturing Development (EMD) in FY 2014. This capability allows a soldier to remain in a protective posture while detecting and neutralizing a wide variety of hybrid and conventional explosive threats.

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

|  | FY 2015 | FY 2016 | FY 2017 |
|--|---------|---------|---------|
| <b>Title:</b> HMDS System Engineering & Program Management Support | 10.077  | 11.543  | 5.969   |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army   |   | <b>Date:</b> February 2016  |                |                |
| <b>Appropriation/Budget Activity</b><br>2040 / 5   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |                |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>  |   | <b>FY 2015</b>  | <b>FY 2016</b> | <b>FY 2017</b> |
| <p><b>Description:</b> HMDS System Engineering &amp; Program Management Support</p> <p><b>FY 2015 Accomplishments:</b><br/>Engineering Manufacturing Development (EMD); Risk Reduction Testing</p> <p><b>FY 2016 Plans:</b><br/>Engineering Manufacturing Development (EMD); Critical Design Review</p> <p><b>FY 2017 Plans:</b><br/>System Engineering and Program Management including matrix support.</p>   |   |   |                |                |
| <p><b>Title:</b> HMDS Increment A, Configuration 1, Ground Penetrating Radar (GPR)</p> <p><b>Description:</b> HMDS Increment A, Configuration 1, Ground Penetrating Radar (GPR)</p> <p><b>FY 2015 Accomplishments:</b><br/>GPR (Upgrade) Trainer Testing</p> <p><b>FY 2017 Plans:</b><br/>Technical Support to Husky Vehicles</p>  |   | 0.500   | -              | 0.203          |
| <p><b>Title:</b> HMDS Increment A, Configuration 1 Ground Penetrating Radar</p> <p><b>Description:</b> HMDS Increment A, Configuration 2</p> <p><b>FY 2015 Accomplishments:</b><br/>GPR (Upgrade) Trainer Testing</p> <p><b>FY 2016 Plans:</b><br/>Critical Design Review (CDR) and Developmental Testing (DT)</p> <p><b>FY 2017 Plans:</b><br/>HMDS A2 CDR1 for Ground Penetrating Radar (GPR), Deep Buried Detector (DBD), and Installation Kit; Risk Reduction Testing.</p> |   | 14.700  | 7.784          | 2.286          |
| <p><b>Title:</b> HMDS Training Aids, Devices, Simulators and Simulations (TADSS)</p> <p><b>Description:</b> PEO STRI to develop trainer.</p> <p><b>FY 2016 Plans:</b></p>  |   | -   | 4.776          | -              |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army  |   | <b>Date:</b> February 2016  |                |                |
| <b>Appropriation/Budget Activity</b><br>2040 / 5  | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |                |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>   |   | <b>FY 2015</b>  | <b>FY 2016</b> | <b>FY 2017</b> |
| Virtual Clearance Training Suite (VCTS), Explosive Hazard Replicated Target Set (EHRTS), Interactive Multimedia Instruction (IMI)   |   |   |                |                |
| <b>Title:</b> HMDS A1 Tactical GPR: Engineer Change Proposal (ECP) to add Wire Detection and Infrared Illumination<br><b>Description:</b> HMDS A1 Tactical GPR: Engineer Change Proposal (ECP) to add Wire Detection and Infrared Illumination<br><b>FY 2017 Plans:</b><br>HMDS A1 Tactical GPR: Engineer Change Proposal (ECP) to add Wire Detection and Infrared Illumination   |   | -   | -              | 2.597          |
| <b>Title:</b> HMDS A1 Trainer: Add Wire Detection and develop logistics materials<br><b>Description:</b> HMDS A1 Trainer: Add Wire Detection and develop logistics materials<br><b>FY 2017 Plans:</b><br>HMDS A1 Trainer: Add Wire Detection and develop logistics materials  |   | -   | -              | 0.440          |
| <b>Title:</b> RCIS Type I & MTRS Inc II<br><b>Description:</b> RCIS Type I & MTRS<br><b>FY 2015 Accomplishments:</b><br>RCIS Type I : MS B preparation, Engineering and Development (EMD) contract preparation, Request For Proposal (RFP) preparation, HMEE platform upgrades, risk reduction testing, System Integration Laboratory (SIL) design/build, PM support and Interoperability. MTRS Inc II: RFP development, scope of work development and Milestone B/C documentation preparation, Risk reduction efforts and PM support. IOP instantiation. Analytical studies and documentation to support pre-Materiel Development Decision (MDD) activities for emerging programs and Capability Development Documents (CDDs)/Capability Production Documents (CPDs) leading up to Milestone Decision Authority (MDA) designation and successful MDDs.<br><b>FY 2016 Plans:</b><br>RCIS Type I: Engineering and Manufacturing Development (EMD), Request for Proposal (RFP) release, Source Selection Evaluation Board (SSEB), upgrade and testing of HMEE platform for EMD, PM support and Interoperability. MTRS Inc II: development, RFP approval, Source Selection Evaluation Board, Risk Reduction efforts and PM support. IOP instantiation and design reviews. Analytical studies and documentation to support pre-Materiel Development Decision (MDD) activities for emerging programs and Capability Development Documents (CDDs)/Capability Production Documents (CPDs) leading up to Milestone Decision Authority.<br><b>FY 2017 Plans:</b> |   | 8.888   | 13.691         | 16.970         |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army  |   | <b>Date:</b> February 2016  |                |                |
| <b>Appropriation/Budget Activity</b><br>2040 / 5  | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |                |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>   |   | <b>FY 2015</b>  | <b>FY 2016</b> | <b>FY 2017</b> |
| RCIS Type I: EMD contract award, Preliminary Design Review (PDR), design and integration and PM support. RCIS funding \$7.801 million.<br>MTRS Inc II: Source Selection Evaluation Board, contract award and preparation for Preliminary Design Review. MTRS Inc II funding \$9.168 million.  |   |   |                |                |
| <b>Title:</b> VOSS Geo-Location Capability & Infrared Camera Replacement<br><b>Description:</b> VOSS capability to determine location of explosive hazards and IR Camera Replacement<br><b>FY 2016 Plans:</b> Spec Development, Interface Control Document (ICD), integration and prototypes for Geo-location capability.<br><b>FY 2017 Plans:</b> Geo-location Qualification, Performance Spec, Engineering Data, Integration and Prototypes for Infrared Camera Replacement.  |   | -   | 2.100          | 2.253          |
| <b>Title:</b> Multifunction Video Display (MVD)<br><b>Description:</b> Multifunction Video Display (MVD). Digital display used to control and view RCV enablers<br><b>FY 2015 Accomplishments:</b> Continued MVD Prototype Development and follow-on Test. Continuing support for MVD SIL at NVESD.<br><b>FY 2016 Plans:</b> Continuing support for MVD SIL at NVESD for development of additional enablers EHP Roller onto MVD.<br><b>FY 2017 Plans:</b> Continuing Support for MVD SIL at NVESD for development of additional enabler (Interrogation Arm software development for control functionality). |   | 1.025   | 0.750          | 0.750          |
| <b>Title:</b> RCV & Enabler Improvements<br><b>Description:</b> Develop the hardware used to improve POR RCVs.<br><b>FY 2015 Accomplishments:</b> Prototype Development of MMPV Type II Interrogation Arm systems improvements.<br><b>FY 2016 Plans:</b> Develop system demonstrator of MMPV Type II Interrogation Arm System Improvements and test. Work upgrade to EHP blower camera. EHP roller development  |   | 0.383   | 1.217          | -              |
| <b>Title:</b> Add on Armor (AoA)  |   | 0.483   | 0.300          | 0.091          |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army |   | <b>Date:</b> February 2016  |
| <b>Appropriation/Budget Activity</b><br>2040 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>  | <b>FY 2015</b> | <b>FY 2016</b> | <b>FY 2017</b> |
|--|----------------|----------------|----------------|
| <p><b>Description:</b> Development AoA efforts for Route Clearance Vehicles (RCV) to include Rocket Propelled Grenade (RPG) and Explosive Formed Projectiles (EFP) for Husky and Buffalo.</p> <p><b>FY 2015 Accomplishments:</b><br/>Investigate lighter weight EFP AoA recipes for RCVs with Army Research Lab. Develop and test Husky Chevron RPG Kit.</p> <p><b>FY 2016 Plans:</b><br/>Develop and test Buffalo EFP AoA Kit.</p> <p><b>FY 2017 Plans:</b><br/>Develop Husky EFP AoA Kit.</p>  |                |                |                |
| <p><b>Title:</b> AMDS</p> <p><b>Description:</b> AMDS</p> <p><b>FY 2015 Accomplishments:</b><br/>Engineering Manufacturing Development (EMD), Preliminary Design Review (PDR), and Risk Reduction Testing (RRT)</p> <p><b>FY 2016 Plans:</b><br/>Engineering Manufacturing Development (EMD), Critical Design Review (CDR), and Development Testing (DT)</p> <p><b>FY 2017 Plans:</b><br/>Engineering Manufacturing Development (EMD), Completion of Development Testing (DT), Limited User Test (LUT), Milestone C, and Initial Operational Test and Evaluation (IOT&amp;E)</p> | 7.258          | 7.135          | 5.299          |
| <b>Accomplishments/Planned Programs Subtotals</b>  | 43.314         | 49.296         | 36.858         |

| <b>C. Other Program Funding Summary (\$ in Millions)</b>      |                |                |                         |                        |                          |                |                |                |                |                             |                   |
|---|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| <b>Line Item</b>  | <b>FY 2015</b> | <b>FY 2016</b> | <b>FY 2017<br/>Base</b> | <b>FY 2017<br/>OCO</b> | <b>FY 2017<br/>Total</b> | <b>FY 2018</b> | <b>FY 2019</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>Cost To<br/>Complete</b> | <b>Total Cost</b> |
| • R64001: <i>Husky Mounted Detection System (HMDS) R64001</i> | 18.545         | 13.565         | 0.274                   | -                      | 0.274                    | 26.578         | 51.645         | 67.044         | 71.133         | Continuing                  | Continuing        |
| • R68102: <i>GSTAMIDS R68102</i>                              | 37.649         | 58.682         | 39.350                  | -                      | 39.350                   | 34.055         | 33.336         | 48.591         | 46.020         | Continuing                  | Continuing        |
| • DA0924: <i>OPA1 Mods in Services DA0924</i>                 | 83.173         | 260.993        | 219.456                 | -                      | 219.456                  | 103.976        | 106.881        | 64.348         | 64.006         | Continuing                  | Continuing        |
| • R68260: <i>AMDS R68260</i>                                  | -              | -              | 10.500                  | -                      | 10.500                   | 16.968         | 26.767         | 29.476         | -              | 0                           | 83.711            |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army |   | <b>Date:</b> February 2016  |
| <b>Appropriation/Budget Activity</b><br>2040 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |

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

| Line Item   | FY 2015 | FY 2016 | FY 2017 | FY 2017 | FY 2017 | FY 2018 | FY 2019 | FY 2020 | FY 2021 | Cost To    |            |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|------------|------------|
|   |         |         | Base    | OCO     | Total   |         |         |         |         | Complete   | Total Cost |
| • 606: <i>Countermine/Barrier Advanced Dev 606</i>    | -       | -       | 4.000   | -       | 4.000   | 4.000   | 3.000   | 12.285  | 16.000  | Continuing | Continuing |
| • R67050: <i>MTRS Inc II</i>                          | -       | -       | 5.471   | -       | 5.471   | 14.752  | 29.603  | 33.558  | 39.650  | Continuing | Continuing |
| • M80400: <i>Robotic Combat Support System (RCSS)</i> | 4.701   | 2.136   | 2.951   | -       | 2.951   | 6.260   | 15.086  | 13.680  | 21.907  | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

The HMDS acquisition strategy is evolutionary with three capability increments – Increment A, Configuration 1 (A1), Increment A, Configuration 2 (A2), and Increment B. Increment A1 leverages the Quick Reaction Capability (QRC) GPR technology currently deployed in support of Operation Enduring Freedom (OEF) and the stand-alone GPR trainer currently used for pre-deployment training. Contract will be awarded to add a wire detection capability to the Increment A1 GPR and stand-alone GPR Trainer. Increment A2 integrates a Deep Buried Detection (DBD) capability to the QRC GPR and adds a DBD training device to the Common Operating Group (COG). The existing Increment A2 contract will be modified to add wire detection. Increment B integrates a Semi-Autonomous Control (SAC) capability with the HMDS, for which Engineering Manufacturing Development (EMD) efforts will be planned.

The RCIS program will execute an EMD phase for Type I systems starting with contract award to one EMD contractor in 2nd Quarter FY 2017. This award will be based on a source selection from full and open competition. The EMD contract awardee will execute Preliminary Design Review (PDR), design, integration, and build phase of seven Semi-Autonomous Capability (SAC) kits, integrated onto six vehicles, with one kit available for engineering and System Integration Lab (SIL) evaluations. These assets will be used for the Government to execute a full Pre-Production Qualification Test (PPQT) and to be evaluated with respect to CPD and performance specification requirements. Production and Technical Data Package (TDP) procurement options on the EMD contract will take advantage of competition to assist in cost reduction. The RCIS Type I program Lifecycle Cost Estimate (LCCE), and associated budget request, was updated based on costs associated with modifying the base HMEE platform to accept the SAC kit, changes in the acquisition strategy and Government Systems Engineering and Program Management (SEPM).

The MTRS Inc II acquisition strategy will execute an abbreviated Engineering Manufacturing Development (EMD) phase followed by a Production Deployment phase to integrate available payloads into the MTRS Inc II material solution. This EMD/Production Deployment award will be based on a source selection from a full and open competition. The EMD contract will be a Firm Fixed Price contract and awardee will execute a Preliminary Design Review(PDR), Critical Design Review (CDR), design integration, pre-production build phase of 10 First Article Test assets, LRIP and Full Rate Production. Pre-Production assets will be used to evaluate performance to performance specifications derived from the MTRS Inc II Capability Production Document (CPD) requirement. Upon completion of this phase, the contractor will proceed to LRIP and Full Rate Production.

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army   |   | <b>Date:</b> February 2016  |
| <b>Appropriation/Budget Activity</b><br>2040 / 5   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |
| <p>PM Ground Sensors is pursuing an acquisition approach for Vehicle Optics Sensor System (VOSS) which harvests Quick Reaction Capability (QRC) procured systems for refresh and insertion into the Program of Record (POR). In FY 2017 VOSS will qualify a Geo-location capability and integrate a less costly, more sustainable and durable Infrared Camera replacement.</p> <p>EHP Debris Blower will be procured as a COTS item from a commercial vendor in FY 2016. EHP Roller and EHP Wire Neutralization System will be procured starting in FY 2017. MVD will be procured through an existing government contract with PdM Common Hardware Systems in FY 2016. Spiral development of software upgrades to MVD will be procured in FY 2017. MMPV Type II Interrogation Arm Engineer Change Proposals/upgrades would be procured in the out years once the user identifies the upgrades needed.</p> <p>AMDS is currently in the Engineering Manufacturing Development (EMD) phase and is being developed to provide standoff detection, marking, and neutralization of explosive hazards (e.g., landmines, improvised explosive devices (IED), booby-traps (explosive), and unexploded ordnance (UXO)) in complex and urban terrain, including confined areas and subterranean environments (e.g., buildings, bunkers, tunnels, etc.). The EMD phase consists of a preliminary design phase, which culminates with the Preliminary Design Review (PDR), a Risk Reduction Test (RRT) to evaluate the preliminary design, a critical design phase, which culminates with the Critical Design Review (CDR), integration with the Talon IV chassis and the Remote Activation Munition System (RAMS), a prototype build of 11 systems, which will be used for integration activities and to conduct the Government Development Test (DT), a Logistics Demonstration (LogDemo), and a Limited User Test (LUT). Transition to Low Rate Initial Production (LRIP) is scheduled to occur in the 3rd Quarter of FY 2017. Initial Operational Test and Evaluation (IOT&amp;E) will occur with LRIP assets in 1st Quarter of FY 2018.</p> <p><b>E. Performance Metrics</b><br/>N/A</p> |   |   |

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army** **Date:** February 2016

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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>415 / Mine Neutral/Detection |
|--|--|--|

| <b>Management Services (\$ in Millions)</b>  |                        |   |             | FY 2015 |            | FY 2016 |            | FY 2017 Base |            | FY 2017 OCO |            | FY 2017 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 - HMDS                    | MIPR                   | PM CCS : Picatinny Arsenal, NJ            | 26.994      | 2.572   | Sep 2016   | 2.941   | Mar 2016   | -            |            | -           |            | -             | Continuing       | Continuing | 0                        |
| HMDS System Engineering & Program Management | MIPR                   | PM Terrestrial Systems : Fort Belvoir, VA | 0.000       | -       |            | -       |            | 1.280        | Mar 2017   | -           |            | 1.280         | 0                | 1.280      | 0                        |
| HMDS PMO SETA                                | SS/CPFF                | TBD : TBD                                 | 0.000       | -       |            | -       |            | 0.400        | Feb 2017   | -           |            | 0.400         | 0                | 0.400      | 0                        |
| Program Management - RCIS Type I             | MIPR                   | PM FP : Warren, MI                        | 0.000       | 1.358   | Mar 2015   | 1.743   | Mar 2016   | 1.790        | Mar 2017   | -           |            | 1.790         | Continuing       | Continuing | 0                        |
| Program Management - MTRS Inc II             | MIPR                   | PM FP : Warren, MI                        | 0.000       | -       |            | 2.200   | Mar 2016   | -            |            | -           |            | -             | Continuing       | Continuing | 0                        |
| Program Management - VOSS                    | MIPR                   | PM Ground Sensors : Ft. Belvoir, VA       | 0.200       | -       |            | 0.161   |            | 0.130        | Jan 2017   | -           |            | 0.130         | 0                | 0.491      | 0                        |
| Program Management - AMDS                    | Allot                  | PM CCS : Picatinny Arsenal, NJ            | 2.166       | 0.492   | Feb 2015   | 1.233   | Mar 2016   | 0.530        | Mar 2017   | -           |            | 0.530         | 0                | 4.421      | 0                        |
| <b>Subtotal</b>                              |                        |   | 29.360      | 4.422   |            | 8.278   |            | 4.130        |            | -           |            | 4.130         | -                | -          | 0.000                    |

| <b>Product Development (\$ in Millions)</b>                            |                        |                                |             | FY 2015 |            | FY 2016 |            | FY 2017 Base |            | FY 2017 OCO |            | FY 2017 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          |                  |            |                          |
| HMDS Inc A2 – Integration of Deep Buried Detection and Wire Detection  | SS/CPFF                | NIITEK Dulles : VA             | 18.900      | 14.236  | Feb 2016   | 5.600   | Jan 2016   | 2.286        | Mar 2017   | -           |            | 2.286         | 0                | 41.022     | 0                        |
| HMDS A1 Dev of Engineering Change Proposal w/ Wire Detect and InfraRed | SS/CPFF                | NITEK : Dulles, VA             | 0.000       | -       |            | -       |            | 2.597        | Feb 2017   | -           |            | 2.597         | 0                | 2.597      | 0                        |
| HMDS A1 Dev of Trainer WD, Test Kit Fabrication                        | SS/CPFF                | NITEK : Dulles, VA             | 0.000       | -       |            | -       |            | 0.440        | Feb 2017   | -           |            | 0.440         | 0                | 0.440      | 0                        |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army          |                        |  |             |   |            |         |            |   |            |             |            | Date: February 2016 |                  |            |                          |
|---|------------------------|--|-------------|---|------------|---------|------------|---|------------|-------------|------------|---------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity<br>2040 / 5                       |                        |  |             | R-1 Program Element (Number/Name)<br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev |            |         |            | Project (Number/Name)<br>415 / Mine Neutral/Detection |            |             |            |                     |                  |            |                          |
| Product Development (\$ in Millions)                            |                        |  |             | FY 2015   |            | FY 2016 |            | FY 2017 Base  |            | FY 2017 OCO |            | FY 2017 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 |
| HMDS - TADSS  | C/FFP                  | TBD - executed through PEO STRI : TBD  | 0.000       | -   |            | 4.661   | Nov 2015   | -   |            | -           |            | -                   | 0                | 4.661      | 0                        |
| RCIS Type I   | SS/FFP                 | PM FP, PdM ALUGS : Warren, MI          | 4.878       | 1.650   | Jan 2016   | 1.751   | Mar 2016   | -   |            | -           |            | -                   | 0                | 8.279      | Continuing               |
| RCIS Type I   | C/CPIF                 | PM FP, ALUGS : WARREN MI               | 0.000       | -   |            | -       |            | 4.133   | Mar 2017   | -           |            | 4.133               | Continuing       | Continuing | 0                        |
| MTRS Inc II   | C/FFP                  | PM FP, PdM UGV : Warren, MI            | 0.000       | -   |            | -       |            | 8.418   | Mar 2017   | -           |            | 8.418               | 0                | 8.418      | 0                        |
| VOSS - New IR camera development                                | C/CPFF                 | Various : Ft. Belvoir, VA              | 1.393       | -   |            | 0.827   | Mar 2016   | 1.127   | Feb 2017   | -           |            | 1.127               | Continuing       | Continuing | Continuing               |
| Multi-Function Video Display                                    | C/CPFF                 | NVESD : Fort Belvoir, VA               | 2.297       | 0.925   |            | 0.250   |            | 0.250   | Jan 2017   | -           |            | 0.250               | 3.047            | 6.769      | 3.047                    |
| RCV & Enablers Improvements - MMPV Type II Interrogation Arm    | C/CPFF                 | KRC : Houghton, MI                     | 0.450       | 0.283   |            | 0.500   |            | -   |            | -           |            | -                   | 0                | 1.233      | 0                        |
| AMDS Engineering and Manufacturing Development (EMD)            | C/CPIF                 | Carnegie Robotics LLC : Pittsburgh, PA | 21.106      | 2.687   | Mar 2015   | -       |            | 1.500   | Jan 2017   | -           |            | 1.500               | 0                | 25.293     | 0                        |
| AMDS Trainer Development  | MIPR                   | ARDEC : , Picatinny Arsenal, NJ        | 0.000       | 0.460   | Aug 2015   | -       |            | -   |            | -           |            | -                   | 0                | 0.460      | 0                        |
| AMDS Training Aids, Devices, Simulators and Simulations (TADSS) | C/FFP                  | TBD - executed thru PEO STRI : TBD     | 0.000       | -   |            | 1.406   | May 2016   | -   |            | -           |            | -                   | 0                | 1.406      | 0                        |
| <b>Subtotal</b>   |                        |  | 49.024      | 20.241  |            | 14.995  |            | 20.751  |            | -           |            | 20.751              | -                | -          | -                        |
| Support (\$ in Millions)  |                        |  |             | FY 2015   |            | FY 2016 |            | FY 2017 Base  |            | FY 2017 OCO |            | FY 2017 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 |
| HMDS - Test Support   | C/FFP                  | USI : Newport News, VA                 | 0.621       | 0.199   | Jul 2015   | 0.601   | Dec 2015   | -   |            | -           |            | -                   | 0                | 1.421      | 0                        |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army |                        |   |             |   |            |         |            |   |            |             |            | Date: February 2016 |                  |            |                          |
|--|------------------------|---|-------------|---|------------|---------|------------|---|------------|-------------|------------|---------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity<br>2040 / 5              |                        |   |             | R-1 Program Element (Number/Name)<br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev |            |         |            | Project (Number/Name)<br>415 / Mine Neutral/Detection |            |             |            |                     |                  |            |                          |
| Support (\$ in Millions)                               |                        |   |             | FY 2015   |            | FY 2016 |            | FY 2017 Base  |            | FY 2017 OCO |            | FY 2017 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 |
| HMDS - Tech Support                                    | C/FFP                  | MANTECH : Fairfax, VA                                       | 0.739       | 0.203   | Dec 2015   | 0.531   | Nov 2015   | 0.203   | Nov 2016   | -           |            | 0.203               | 0                | 1.676      | 0                        |
| HMDS   | MIPR                   | NVESD/CERDEC : Fort Belvoir, VA                             | 8.111       | 2.102   | Mar 2015   | 2.220   | Jan 2016   | 1.000   | Jan 2017   | -           |            | 1.000               | Continuing       | Continuing | 0                        |
| HMDS - Information Assurance                           | FFRDC                  | MITRE : McLean, VA  | 0.276       | 0.294   | Dec 2015   | 0.150   | May 2016   | 0.150   | May 2017   | -           |            | 0.150               | 0                | 0.870      | 0                        |
| HMDS - LOG DEMO  | C/CPFF                 | FIBERTEK : TBD  | 0.000       | 0.381   | Sep 2015   | -       |            | -   |            | -           |            | -                   | 0                | 0.381      | 0                        |
| HMDS   | MIPR                   | PM FP, PdM ALUGS : Warren, MI                               | 3.269       | -   |            | 1.160   | Jan 2016   | -   |            | -           |            | -                   | 0                | 4.429      | 0                        |
| HMDS - Cost Analysis                                   | C/CPFF                 | CACI : va   | 0.000       | 0.048   | Dec 2015   | -       |            | -   |            | -           |            | -                   | 0                | 0.048      | 0                        |
| HMDS   | MIPR                   | PEO STRI : Orlando, FL                                      | 0.744       | 0.957   | May 2015   | 0.628   | Jan 2016   | 0.490   | Jan 2017   | -           |            | 0.490               | 0                | 2.819      | 0                        |
| HMDS   | MIPR                   | CECOM : Aberdeen, MD  | 1.256       | 1.293   | Apr 2015   | 1.515   | Jan 2016   | 1.000   | Jan 2017   | -           |            | 1.000               | 0                | 5.064      | 0                        |
| HMDS - Test Data Plan Analysis                         | SS/CPFF                | IDA : Alexandria, VA  | 0.560       | -   |            | 0.350   | May 2016   | 0.360   | May 2017   | -           |            | 0.360               | 0                | 1.270      | 0                        |
| HMDS   | MIPR                   | MSCoE : Ft. Leonard Wood, MO                                | 0.000       | -   |            | 0.119   | Jan 2016   | 0.115   | Jan 2017   | -           |            | 0.115               | 0                | 0.234      | 0                        |
| HMDS   | MIPR                   | Various : Various locations                                 | 2.608       | 0.265   | Dec 2015   | -       |            | -   |            | -           |            | -                   | 0                | 2.873      | 0                        |
| HMDS   | MIPR                   | Product Realization Directorate (PRD)/CERDEC : Aberdeen, MD | 0.462       | 0.634   | Mar 2015   | 0.447   | Jan 2016   | 0.460   | Jan 2017   | -           |            | 0.460               | 0                | 2.003      | 0                        |
| HMDS   | MIPR                   | ARDEC : Picatinny Arsenal, NJ                               | 1.353       | 0.548   | Jan 2015   | 0.524   | Jan 2016   | 0.714   | Jan 2017   | -           |            | 0.714               | 0                | 3.139      | 0                        |
| HMDS   | MIPR                   | ADM : Edgewater, MD   | 0.000       | 1.206   | Dec 2015   | -       |            | -   |            | -           |            | -                   | 0                | 1.206      | 0                        |
| HMDS   | MIPR                   | AMRDEC : Redstone Arsenal, AL                               | 0.297       | 0.252   | May 2015   | 0.472   | Jan 2016   | -   |            | -           |            | -                   | 0                | 1.021      | 0                        |
| HMDS   | MIPR                   | TARDEC : Warren, MI   | 0.545       | -   |            | -       |            | -   |            | -           |            | -                   | 0                | 0.545      | 0                        |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army |                        |                                 |             |  |            |         |            |                              |            |             |            | Date: February 2016 |                  |            |                          |
|--|------------------------|---------------------------------|-------------|--|------------|---------|------------|------------------------------|------------|-------------|------------|---------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity                          |                        |                                 |             | R-1 Program Element (Number/Name)                |            |         |            | Project (Number/Name)        |            |             |            |                     |                  |            |                          |
| 2040 / 5   |                        |                                 |             | PE 0604808A / Landmine Warfare/Barrier - Eng Dev |            |         |            | 415 / Mine Neutral/Detection |            |             |            |                     |                  |            |                          |
| Support (\$ in Millions)                               |                        |                                 |             | FY 2015  |            | FY 2016 |            | FY 2017 Base                 |            | FY 2017 OCO |            | FY 2017 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 |
| RCIS Type I  | MIPR                   | PM FP, PdM ALUGS : Warren, MI   | 3.130       | 2.469  | Mar 2015   | 2.596   | Mar 2016   | 1.379                        | Mar 2017   | -           |            | 1.379               | Continuing       | Continuing | 0                        |
| Robotics Interoperability                              | MIPR                   | PM FP, PdM ALUGS : Warren, MI   | 2.000       | 1.000  | Mar 2015   | 1.000   | Mar 2016   | -                            |            | -           |            | -                   | 0                | 4.000      | 0                        |
| MTRS Inc II  | Various                | PM FP, PdM UGV : Warren, MI     | 3.600       | 1.240  | Mar 2015   | 3.865   | Mar 2016   | -                            |            | -           |            | -                   | Continuing       | Continuing | 0                        |
| VOSS   | MIPR                   | Various : Various               | 2.376       | -  |            | 0.344   |            | -                            |            | -           |            | -                   | Continuing       | Continuing | Continuing               |
| Multi-function Video Display                           | C/CPFF                 | NVESD/CERDEC : Fort Belvoir, VA | 2.297       | -  |            | 0.500   |            | 0.500                        | Jan 2017   | -           |            | 0.500               | 0                | 3.297      | 0                        |
| Add on Armor (AoA) Husky RPG Kit                       | MIPR                   | TARDEC : Warren, MI             | 0.000       | 0.283  |            | -       |            | -                            |            | -           |            | -                   | 0                | 0.283      | 0                        |
| AoA Husky AoA Kit                                      | MIPR                   | TARDEC : Warren, MI             | 0.000       | -  |            | -       |            | 0.091                        | Feb 2017   | -           |            | 0.091               | 0                | 0.091      | 0                        |
| EHP Roller Development                                 | MIPR                   | TARDEC : Warren, MI             | 0.000       | -  |            | 0.400   | Nov 2015   | -                            |            | -           |            | -                   | 0                | 0.400      | 0                        |
| EHP Blower Camera Upgrade                              | MIPR                   | TARDEC : Warren, MI             | 0.000       | -  |            | 0.050   | Apr 2016   | -                            |            | -           |            | -                   | 0                | 0.050      | 0                        |
| AMDS   | MIPR                   | Various : Various               | 2.870       | 2.742  | Jan 2015   | 1.611   | Jan 2016   | 1.769                        | Jan 2017   | -           |            | 1.769               | 0                | 8.992      | 0                        |
| <b>Subtotal</b>  |                        |                                 | 37.114      | 16.116   |            | 19.083  |            | 8.231                        |            | -           |            | 8.231               | -                | -          | -                        |
| Test and Evaluation (\$ in Millions)                   |                        |                                 |             | FY 2015  |            | FY 2016 |            | FY 2017 Base                 |            | FY 2017 OCO |            | FY 2017 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 |
| HMDS   | MIPR                   | ATEC : Alexandria, VA           | 2.216       | 0.086  | Mar 2015   | 2.184   | Jan 2016   | -                            |            | -           |            | -                   | Continuing       | Continuing | Continuing               |
| RCIS Type I  | MIPR                   | ATEC : Aberdeen, MD             | 1.334       | 0.171  | May 2015   | 0.536   | Feb 2016   | 0.500                        | Feb 2017   | -           |            | 0.500               | 0                | 2.541      | 0                        |
| VOSS - Geo location qualification                      | MIPR                   | ATEC : Alexandria, VA           | 3.154       | -  |            | 0.768   |            | 0.996                        | Mar 2017   | -           |            | 0.996               | Continuing       | Continuing | Continuing               |

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army** **Date:** February 2016

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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>415 / Mine Neutral/Detection |
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| <b>Test and Evaluation (\$ in Millions)</b>                 |                        |                                |             | FY 2015 |            | FY 2016 |            | FY 2017 Base |            | FY 2017 OCO |            | FY 2017 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          |                  |            |                          |
| MTRS Inc II   | MIPR                   | TARDEC, Various : Warren, MI   | 0.000       | 1.000   |            | -       |            | 0.750        | Jan 2017   | -           |            | 0.750         | 0                | 1.750      | 0                        |
| Multi-Function Video Display                                | WR                     | KRC : Houghton, MI             | 1.000       | 0.100   | Mar 2015   | -       |            | -            |            | -           |            | -             | 0                | 1.100      | 0                        |
| RCV & Enabler Improvements -MMPV Type II Interrogation Arm. | MIPR                   | TARDEC : Warren, MI            | 0.000       | 0.100   | Mar 2015   | 0.267   |            | -            |            | -           |            | -             | 0                | 0.367      | 0                        |
| Add on Armor (AoA) Husky RPG                                | MIPR                   | ATEC : Aberdeen, MD            | 0.000       | 0.100   | Mar 2015   | -       |            | -            |            | -           |            | -             | 0                | 0.100      | 0                        |
| Add on Armor Buffalo EFP                                    | MIPR                   | ATEC : Aberdeen, MD            | 0.000       | -       |            | 0.300   | Jun 2016   | -            |            | -           |            | -             | 0                | 0.300      | 0                        |
| Add-on Armor  | MIPR                   | ARL : Adelphi, MD              | 0.000       | 0.100   | Mar 2015   | -       |            | -            |            | -           |            | -             | 0                | 0.100      | 0                        |
| AMDS  | MIPR                   | ATEC : Aberdeen, MD            | 0.000       | 0.878   | Feb 2015   | 2.885   | Feb 2016   | 1.500        | Aug 2017   | -           |            | 1.500         | 0                | 5.263      | 0                        |
| <b>Subtotal</b>   |                        |                                | 7.704       | 2.535   |            | 6.940   |            | 3.746        |            | -           |            | 3.746         | -                | -          | -                        |
| <b>Project Cost Totals</b>                                  |                        |                                | 123.202     | 43.314  |            | 49.296  |            | 36.858       |            | -           |            | 36.858        | -                | -          | -                        |

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army** **Date:** February 2016

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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>415 / Mine Neutral/Detection |
|--|--|--|

| Event Name                                 | 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 |
| (1) HMDS Increment A1 - MS C Review        |         |   |   |   | ▲<br>A1 MSC |   |   |   |                        |   |   |   |                          |   |   |   |                              |   |   |   |                             |   |   |   |         |   |   |   |
| (2) HMDS Increment A1-TC/MR                |         |   |   |   |             |   |   |   | ▲<br>A1 TC/MR          |   |   |   |                          |   |   |   |                              |   |   |   |                             |   |   |   |         |   |   |   |
| (3) HMDS Increment A1-FUE                  |         |   |   |   |             |   |   |   | ▲<br>A1 FUE            |   |   |   |                          |   |   |   |                              |   |   |   |                             |   |   |   |         |   |   |   |
| (4) HMDS Increment A1-IOC                  |         |   |   |   |             |   |   |   |                        |   |   |   | ▲<br>A1 IOC              |   |   |   |                              |   |   |   |                             |   |   |   |         |   |   |   |
| (5) HMDS Increment A1 V1 Trainer TC/MR     |         |   |   |   |             |   |   |   |                        |   |   |   | ▲<br>A1 V1 Trainer TC/MR |   |   |   |                              |   |   |   |                             |   |   |   |         |   |   |   |
| (6) HMDS Increment A1 V1 Trainer FUE       |         |   |   |   |             |   |   |   |                        |   |   |   | ▲<br>A1 V1 Trainer FUE   |   |   |   |                              |   |   |   |                             |   |   |   |         |   |   |   |
| (7) HMDS Increment A1 Award ECP for WD     |         |   |   |   |             |   |   |   |                        |   |   |   | ▲<br>A1 ECP WD           |   |   |   |                              |   |   |   |                             |   |   |   |         |   |   |   |
| (8) HMDS Incr A1 V1 w/WD TC/MR             |         |   |   |   |             |   |   |   |                        |   |   |   |                          |   |   |   | ▲<br>A1 V1 w/WD TC/MR        |   |   |   |                             |   |   |   |         |   |   |   |
| (9) HMDS Increment A1 w/WD FUE             |         |   |   |   |             |   |   |   |                        |   |   |   |                          |   |   |   |                              |   |   |   | ▲<br>A1 w/WD FUE            |   |   |   |         |   |   |   |
| (10) HMDS Increment A1 V1 Trainer w/WD FUE |         |   |   |   |             |   |   |   |                        |   |   |   |                          |   |   |   |                              |   |   |   | ▲<br>A1 V1 Trainer w/WD FUE |   |   |   |         |   |   |   |
| (11) HMDS Increment A2 Award Modification  |         |   |   |   |             |   |   |   | ▲<br>Incr A2 Award Mod |   |   |   |                          |   |   |   |                              |   |   |   |                             |   |   |   |         |   |   |   |
| (12) HMDS Incr A2 CDR for Element 1        |         |   |   |   |             |   |   |   |                        |   |   |   | ▲<br>A2 CDR Element 1    |   |   |   |                              |   |   |   |                             |   |   |   |         |   |   |   |
| (13) HMDS Incr A2 Award CLIN for Element 2 |         |   |   |   |             |   |   |   |                        |   |   |   |                          |   |   |   | ▲<br>A2 Award CLIN Element 2 |   |   |   |                             |   |   |   |         |   |   |   |

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**Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army** **Date:** February 2016

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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>415 / Mine Neutral/Detection |
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| Event Name   | 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 |  |  |  |  |  |
| (1) HMDS Incr A2 CDR for Element 2                   |         |   |   |   |         |   |   |   |                         |   |   |   |           |   |   |   | ▲<br>A2 CDR Element 2        |   |   |   |         |   |   |   |                        |   |   |   |  |  |  |  |  |
| (2) HMDS Incr A2 Award CLIN for Element 3            |         |   |   |   |         |   |   |   |                         |   |   |   |           |   |   |   | ▲<br>A2 Award CLIN Element 3 |   |   |   |         |   |   |   |                        |   |   |   |  |  |  |  |  |
| (3) HMDS Incr A2 Award CLIN for Element 4            |         |   |   |   |         |   |   |   |                         |   |   |   |           |   |   |   | ▲<br>A2 Award CLIN Element 4 |   |   |   |         |   |   |   |                        |   |   |   |  |  |  |  |  |
| (4) HMDS Incr A2 CDR for Element 4                   |         |   |   |   |         |   |   |   |                         |   |   |   |           |   |   |   |                              |   |   |   |         |   |   |   | ▲<br>A2 CDR Element 4  |   |   |   |  |  |  |  |  |
| (5) HMDS Incr A2 Element 4 Test Articles             |         |   |   |   |         |   |   |   |                         |   |   |   |           |   |   |   |                              |   |   |   |         |   |   |   | ▲<br>A2 Element 4 Test |   |   |   |  |  |  |  |  |
| <b>RCIS Type I and Type II</b>                       | ■       |   |   |   |         |   |   |   |                         |   |   |   |           |   |   |   |                              |   |   |   |         |   |   |   |                        |   |   |   |  |  |  |  |  |
| (6) RCIS Type I MS B                                 |         |   |   |   |         |   |   |   | ▲<br>MS B               |   |   |   |           |   |   |   |                              |   |   |   |         |   |   |   |                        |   |   |   |  |  |  |  |  |
| (7) RCIS Type 1 EMD Contract Award                   |         |   |   |   |         |   |   |   | ▲<br>EMD Contract Award |   |   |   |           |   |   |   |                              |   |   |   |         |   |   |   |                        |   |   |   |  |  |  |  |  |
| (8) RCIS Type I PDR                                  |         |   |   |   |         |   |   |   | ▲<br>PDR                |   |   |   |           |   |   |   |                              |   |   |   |         |   |   |   |                        |   |   |   |  |  |  |  |  |
| (9) RCIS Type I MS C                                 |         |   |   |   |         |   |   |   |                         |   |   |   | ▲<br>MS C |   |   |   |                              |   |   |   |         |   |   |   |                        |   |   |   |  |  |  |  |  |
| (10) RCIS Type I Low Rate Initial Production (LRIP)  |         |   |   |   |         |   |   |   |                         |   |   |   | ▲<br>LRIP |   |   |   |                              |   |   |   |         |   |   |   |                        |   |   |   |  |  |  |  |  |
| (11) RCIS Type I Full Rate Production (FRP) Decision |         |   |   |   |         |   |   |   |                         |   |   |   |           |   |   |   | ▲<br>FRP                     |   |   |   |         |   |   |   |                        |   |   |   |  |  |  |  |  |
| <b>MTRS</b>  | ■       |   |   |   |         |   |   |   |                         |   |   |   |           |   |   |   |                              |   |   |   |         |   |   |   |                        |   |   |   |  |  |  |  |  |

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**Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army** **Date:** February 2016

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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>415 / Mine Neutral/Detection |
|--|--|--|

| Event Name  | 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 |   |  |  |  |                     |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |
| (1) MTRS Inc II RFP                                 |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |           |   |   |   |   |  |  |  | ▲<br>RFP            |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |
| (2) MTRS Inc II MS B/C                              |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |           |   |   |   |   |  |  |  | ▲<br>MS B/C         |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |
| (3) MTRS Inc II Contract Award                      |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |           |   |   |   |   |  |  |  | ▲<br>Contract Award |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |
| (4) MTRS Inc II PDR                                 |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |           |   |   |   |   |  |  |  | ▲<br>PDR            |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |
| (5) MTRS Inc II CDR                                 |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |           |   |   |   |   |  |  |  | ▲<br>CDR            |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |
| MTRS Inc II First Article Testing                   |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |           |   |   |   |   |  |  |  |                     |  |  |  | FAT   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |
| MTRS Inc II IOT&E                                   |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |           |   |   |   |   |  |  |  |                     |  |  |  | IOT&E |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |
| (6) MTRS Inc II Full Rate Production (FRP) Decision |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |           |   |   |   |   |  |  |  |                     |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ▲<br>FRP  |
| (7) MTRS Inc II LRIP                                |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |           |   |   |   |   |  |  |  |                     |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ▲<br>LRIP |
| (8) MTRS Inc II Fielding                            | ▲<br>Fielding |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |           |   |   |   |   |  |  |  |                     |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |
| <b>VOSS</b>   |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   | ■         |   |   |   |   |  |  |  |                     |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |
| (9) VOSS MS C                                       |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   | ▲<br>MS C |   |   |   |   |  |  |  |                     |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |
| Geo-location Integration                            |               |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |           |   |   |   | ■ |  |  |  |                     |  |  |  |       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |           |

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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>415 / Mine Neutral/Detection |
|--|--|--|

| Event Name  | 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 |  |  |  |  |
| Geo-location Qualification  |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| (1) Geo-location Operation Test   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   | ▲ 1     |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| Infrared Camera Replacement   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| Infrared Camera Qualification   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| <b>MVD</b>  |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| (2) MVD Production Qualification Testing                                | ▲ 2     |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| <b>Production Qualification Testing</b>                                 |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| (3) MVD Operational Testing   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| (4) MVD Production Cut-In   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| MVD to Incorporate EHP/ Spiral Software Development                     |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| <b>Development</b>  |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| MVD Future Incremental Capability Upgrades/ Spiral Software Development |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| <b>Development</b>  |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| <b>RCV &amp; Enablers</b>   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| <b>Husky Semi-autonomous Control Demo</b>                               |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |
| <b>RCV Weight Reduction Study</b>                                       |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |

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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>415 / Mine Neutral/Detection |
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| Event Name   | 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 |
| <b>RCV Transportability Study</b>                              |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Interrogation Arm Upgrade Demonstrator MMPV Type II            |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (1) Interrogation Arm Upgrade Demonstrator MMPV Type II Cut-In |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| EHP Debris Blower Camera Upgrade                               |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| <b>Add on Armor (AoA)</b>                                      |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| <b>Buffalo RPG Kit reverse engineer</b>                        |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (2) RPG Defeat Add on Armor Husky                              |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (3) RPG Defeat Add on Armor Husky LRIP                         |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (4) RPG Defeat Add on Armor Husky LRIP Testing                 |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (5) RPG Defeat Add on Armor Husky FRP                          |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| EHP Roller Development   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| EFP Defeat Add on Armor Research continuation w/ ARL           |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (6) EFP Defeat Add on Armor Prototype Development (Buffalo)    |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
|  |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
|  |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |

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| Event Name  | FY 2015 |   |   |   | FY 2016 |   |   |   | FY 2017 |   |   |   | FY 2018 |   |   |   | FY 2019 |   |   |   | FY 2020 |   |   |   | FY 2021 |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|   | 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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (1) EFP Defeat Add on Armor LRIP (Buffalo)            |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (2) EFP Defeat Add on Armor LRIP Testing (Buffalo)    |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (3) EFP Defeat Add on Armor FRP (Buffalo)             |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EFP Defeat Add on Armor Prototype Development (Husky) |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (4) EFP Defeat Add on Armor LRIP (Husky)              |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (5) EFP Defeat Add on Armor LRIP Testing (Husky)      |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (6) EFP Defeat Add on Armor FRP (Husky)               |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>AMDS</b>   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (7) AMDS Preliminary Design Review (PDR)              |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AMDS Risk Reduction Testing (RRT)                     |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (8) AMDS Critical Design Review (CDR)                 |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AMDS Developmental Test (DT)                          |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AMDS Limited User Test (LUT)                          |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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**Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army** **Date:** February 2016

|  |  |  |
|--|--|--|
| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>415 / Mine Neutral/Detection |
|--|--|--|

| Event Name  | 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 |  |
| (1) AMDS Milestone C Low Rate Initial Production (LRIP) |         |   |   |   |         |   |   |   | ▲<br>MS C LRIP |   |   |   |          |   |   |   |         |   |   |   |         |   |   |   |          |   |   |   |  |
| AMDS Initial Operational Test and Evaluation (IOT&E)    |         |   |   |   |         |   |   |   | ■<br>IOT&E     |   |   |   |          |   |   |   |         |   |   |   |         |   |   |   |          |   |   |   |  |
| (2) AMDS Full Rate Production (FRP)                     |         |   |   |   |         |   |   |   |                |   |   |   | ▲<br>FRP |   |   |   |         |   |   |   |         |   |   |   |          |   |   |   |  |
| (3) AMDS Initial Operational Capability (IOC)           |         |   |   |   |         |   |   |   |                |   |   |   | ▲<br>IOC |   |   |   |         |   |   |   |         |   |   |   |          |   |   |   |  |
| (4) AMDS Full Operational Capability (FOC)              |         |   |   |   |         |   |   |   |                |   |   |   |          |   |   |   |         |   |   |   |         |   |   |   | ▲<br>FOC |   |   |   |  |
|   |         |   |   |   |         |   |   |   |                |   |   |   |          |   |   |   |         |   |   |   |         |   |   |   |          |   |   |   |  |

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| <b>Exhibit R-4A, RDT&amp;E Schedule Details: PB 2017 Army</b> |   | <b>Date:</b> February 2016  |
| <b>Appropriation/Budget Activity</b><br>2040 / 5              | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |

Schedule Details

| Events                                | Start   |      | End     |      |
|---------------------------------------|---------|------|---------|------|
|                                       | Quarter | Year | Quarter | Year |
| HMDS Increment A1 - MS C Review       | 4       | 2016 | 4       | 2016 |
| HMDS Increment A1-TC/MR               | 2       | 2017 | 2       | 2017 |
| HMDS Increment A1-FUE                 | 2       | 2017 | 2       | 2017 |
| HMDS Increment A1-IOC                 | 3       | 2018 | 3       | 2018 |
| HMDS Increment A1 V1 Trainer TC/MR    | 3       | 2017 | 3       | 2017 |
| HMDS Increment A1 V1 Trainer FUE      | 3       | 2017 | 3       | 2017 |
| HMDS Increment A1 Award ECP for WD    | 2       | 2017 | 2       | 2017 |
| HMDS Incr A1 V1 w/WD TC/MR            | 2       | 2020 | 2       | 2020 |
| HMDS Increment A1 w/WD FUE            | 2       | 2021 | 2       | 2021 |
| HMDS Increment A1 V1 Trainer w/WD FUE | 1       | 2021 | 1       | 2021 |
| HMDS Increment A2 Award Modification  | 4       | 2016 | 4       | 2016 |
| HMDS Incr A2 CDR for Element 1        | 2       | 2017 | 2       | 2017 |
| HMDS Incr A2 Award CLIN for Element 2 | 1       | 2018 | 1       | 2018 |
| HMDS Incr A2 CDR for Element 2        | 1       | 2019 | 1       | 2019 |
| HMDS Incr A2 Award CLIN for Element 3 | 4       | 2019 | 4       | 2019 |
| HMDS Incr A2 Award CLIN for Element 4 | 4       | 2019 | 4       | 2019 |
| HMDS Incr A2 CDR for Element 4        | 3       | 2021 | 3       | 2021 |
| HMDS Incr A2 Element 4 Test Articles  | 4       | 2021 | 4       | 2021 |
| RCIS Type I and Type II               | 1       | 2015 | 1       | 2015 |
| RCIS Type I MS B                      | 2       | 2017 | 2       | 2017 |
| RCIS Type 1 EMD Contract Award        | 2       | 2017 | 3       | 2017 |
| RCIS Type I PDR                       | 3       | 2017 | 3       | 2017 |

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2017 Army **Date:** February 2016

|  |   |   |
|--|---|---|
| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |
|--|---|---|

| Events  | Start   |      | End     |      |
|---|---------|------|---------|------|
|   | Quarter | Year | Quarter | Year |
| RCIS Type I MS C                                | 4       | 2019 | 4       | 2019 |
| RCIS Type I Low Rate Initial Production (LRIP)  | 1       | 2020 | 1       | 2020 |
| RCIS Type I Full Rate Production (FRP) Decision | 4       | 2021 | 4       | 2021 |
| MTRS  | 2       | 2015 | 2       | 2015 |
| MTRS Inc II RFP                                 | 4       | 2016 | 4       | 2016 |
| MTRS Inc II MS B/C                              | 2       | 2017 | 3       | 2017 |
| MTRS Inc II Contract Award                      | 2       | 2017 | 3       | 2017 |
| MTRS Inc II PDR                                 | 1       | 2018 | 1       | 2018 |
| MTRS Inc II CDR                                 | 2       | 2018 | 2       | 2018 |
| MTRS Inc II First Article Testing               | 2       | 2018 | 2       | 2019 |
| MTRS Inc II IOT&E                               | 4       | 2019 | 1       | 2020 |
| MTRS Inc II Full Rate Production (FRP) Decision | 1       | 2020 | 1       | 2020 |
| MTRS Inc II LRIP                                | 2       | 2019 | 2       | 2019 |
| MTRS Inc II Fielding                            | 4       | 2020 | 4       | 2020 |
| VOSS  | 1       | 2016 | 1       | 2016 |
| VOSS MS C                                       | 1       | 2015 | 1       | 2015 |
| Geo-location Integration                        | 1       | 2016 | 4       | 2016 |
| Geo-location Qualification                      | 1       | 2017 | 4       | 2017 |
| Geo-location Operation Test                     | 4       | 2017 | 4       | 2017 |
| Infrared Camera Replacement                     | 1       | 2017 | 4       | 2017 |
| Infrared Camera Qualification                   | 1       | 2018 | 4       | 2018 |
| MVD   | 1       | 2016 | 1       | 2016 |
| MVD Production Qualification Testing            | 1       | 2015 | 4       | 2015 |
| MVD Operational Testing                         | 4       | 2016 | 4       | 2016 |
| MVD Production Cut-In                           | 4       | 2016 | 4       | 2016 |

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**Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army** **Date:** February 2016

|  |   |   |
|--|---|---|
| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |
|--|---|---|

| Events  | Start   |      | End     |      |
|---|---------|------|---------|------|
|   | Quarter | Year | Quarter | Year |
| MVD to Incorporate EHP/ Spiral Software Development                     | 1       | 2015 | 1       | 2017 |
| MVD Future Incremental Capability Upgrades/ Spiral Software Development | 1       | 2017 | 4       | 2020 |
| RCV & Enablers  | 1       | 2016 | 4       | 2020 |
| Husky Semi-autonomous Control Demo                                      | 1       | 2018 | 3       | 2018 |
| RCV Weight Reduction Study  | 1       | 2018 | 4       | 2018 |
| RCV Transportability Study  | 2       | 2018 | 4       | 2019 |
| Interrogation Arm Upgrade Demonstrator MMPV Type II                     | 1       | 2016 | 4       | 2016 |
| Interrogation Arm Upgrade Demonstrator MMPV Type II Cut-In              | 4       | 2016 | 4       | 2016 |
| EHP Debris Blower Camera Upgrade  | 2       | 2016 | 3       | 2016 |
| Add on Armor (AoA)  | 2       | 2015 | 2       | 2015 |
| Buffalo RPG Kit reverse engineer  | 2       | 2017 | 4       | 2017 |
| RPG Defeat Add on Armor Husky   | 4       | 2015 | 4       | 2015 |
| RPG Defeat Add on Armor Husky LRIP                                      | 1       | 2016 | 1       | 2016 |
| RPG Defeat Add on Armor Husky LRIP Testing                              | 2       | 2016 | 2       | 2016 |
| RPG Defeat Add on Armor Husky FRP                                       | 3       | 2016 | 3       | 2016 |
| EHP Roller Development  | 1       | 2016 | 4       | 2016 |
| EFP Defeat Add on Armor Research continuation w/ ARL                    | 1       | 2020 | 2       | 2020 |
| EFP Defeat Add on Armor Prototype Development (Buffalo)                 | 3       | 2016 | 3       | 2016 |
| EFP Defeat Add on Armor LRIP (Buffalo)                                  | 4       | 2016 | 4       | 2016 |
| EFP Defeat Add on Armor LRIP Testing (Buffalo)                          | 1       | 2017 | 1       | 2017 |
| EFP Defeat Add on Armor FRP (Buffalo)                                   | 2       | 2017 | 2       | 2017 |
| EFP Defeat Add on Armor Prototype Development (Husky)                   | 1       | 2017 | 1       | 2017 |
| EFP Defeat Add on Armor LRIP (Husky)                                    | 2       | 2017 | 2       | 2017 |
| EFP Defeat Add on Armor LRIP Testing (Husky)                            | 3       | 2017 | 3       | 2017 |
| EFP Defeat Add on Armor FRP (Husky)                                     | 4       | 2017 | 4       | 2017 |

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**Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army** **Date:** February 2016

|  |   |   |
|--|---|---|
| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>415 / <i>Mine Neutral/Detection</i> |
|--|---|---|

| Events   | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| AMDS   | 1       | 2016 | 1       | 2016 |
| AMDS Preliminary Design Review (PDR)                 | 3       | 2015 | 3       | 2015 |
| AMDS Risk Reduction Testing (RRT)                    | 1       | 2016 | 1       | 2016 |
| AMDS Critical Design Review (CDR)                    | 2       | 2016 | 2       | 2016 |
| AMDS Developmental Test (DT)                         | 3       | 2016 | 1       | 2017 |
| AMDS Limited User Test (LUT)                         | 1       | 2017 | 2       | 2017 |
| AMDS Milestone C Low Rate Initial Production (LRIP)  | 3       | 2017 | 3       | 2017 |
| AMDS Initial Operational Test and Evaluation (IOT&E) | 1       | 2018 | 1       | 2018 |
| AMDS Full Rate Production (FRP)                      | 3       | 2018 | 3       | 2018 |
| AMDS Initial Operational Capability (IOC)            | 3       | 2020 | 3       | 2020 |
| AMDS Full Operational Capability (FOC)               | 3       | 2021 | 3       | 2021 |

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|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|--|----------------|----------------------------|-------------------------|-------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army |                    |                |                |                     |  |                      |                |  |                | <b>Date:</b> February 2016 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>2040 / 5                   |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev |                      |                | <b>Project (Number/Name)</b><br>434 / Anti-Personnel Landmine Alternatives (NSD) |                |                            |                         |                   |
| <b>COST (\$ in Millions)</b>                                       | <b>Prior Years</b> | <b>FY 2015</b> | <b>FY 2016</b> | <b>FY 2017 Base</b> | <b>FY 2017 OCO</b>   | <b>FY 2017 Total</b> | <b>FY 2018</b> | <b>FY 2019</b>   | <b>FY 2020</b> | <b>FY 2021</b>             | <b>Cost To Complete</b> | <b>Total Cost</b> |
| 434: Anti-Personnel Landmine Alternatives (NSD)                    | -                  | 10.265         | 4.290          | 0.000               | -  | 0.000                | 0.000          | 0.000  | 0.000          | 0.000                      | 0.000                   | 14.555            |
| Quantity of RDT&E Articles   | -                  | -              | -              | -                   | -  | -                    | -              | -  | -              | -                          |                         |                   |

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

Spider Increment 1A will build upon the existing M7 Spider system. The M7 Spider system is a hand-emplaced, remotely controlled (Man-In-The-Loop) system that provides highly responsive terrain-shaping and protection capabilities. M7 Spider replaces persistent anti-personnel landmines, is compliant with US National Landmine policy, and has been fielded to US forces in support of Operation Enduring Freedom and currently being fielded to Engineers within Brigade Combat Teams in the Active and Army National Guard components. Additional capabilities will be developed to enhance the Spider Remote Control Station and demonstrate the ability to employ legacy Government-Off-The-Shelf (GOTS) lethal and non-lethal anti-personnel (AP) munitions and counter mobility obstacles. Spider Increment 1A will utilize an open system architecture to facilitate future munition integration. Spider Increment 1A completed documentation efforts for the Non-Lethal Launcher (NLL) XM809 and XM810 contract activities in support of Type Classification.

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

|  | <b>FY 2015</b> | <b>FY 2016</b> | <b>FY 2017</b> |
|--|----------------|----------------|----------------|
| <p><b>Title:</b> Spider Increment 1A Contract</p> <p><b>Description:</b> Develop Spider Increment 1A Controller with the ability to employ/control and initiate AP &amp; counter mobility obstacle munitions. Supported development efforts of the Spider NLL for use with the Spider Inc 1A system.</p> <p><b>FY 2015 Accomplishments:</b><br/>Additional MODs to Spider Increment 1A EMD development efforts is Platform PC Trainer and Safety Banner.</p>   | 3.369          | -              | -              |
| <p><b>Title:</b> Engineering Support</p> <p><b>Description:</b> Perform engineering support.</p> <p><b>FY 2015 Accomplishments:</b><br/>Continue development of the Spider Inc 1A system. Provide engineering support, software development support, MANPRINT and HFE support to contractor Developmental Testing.</p> <p><b>FY 2016 Plans:</b><br/>Continue to support development of Spider Increment 1A system. Support Critical Design Review (CDR) and Post CDR assessment. Support Milestone C and government qualification testing.</p> | 5.149          | 1.504          | -              |
| <p><b>Title:</b> Test and Evaluation</p>   | 0.702          | 2.210          | -              |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army  |  | <b>Date:</b> February 2016   |                |                |
| <b>Appropriation/Budget Activity</b><br>2040 / 5  | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>434 / Anti-Personnel Landmine Alternatives (NSD) |                |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>   |  | <b>FY 2015</b>   | <b>FY 2016</b> | <b>FY 2017</b> |
| <p><b>Description:</b> Provide support to Contractor/Government test activities.</p> <p><b>FY 2015 Accomplishments:</b><br/>Provide support to Contractor/Government test activities. Contractor will conduct software testing to include system Lab Integration/parking lot testing, Functional Qualification Test (FQT), and System Verification Test (SVT). Government will conduct government testing; User Jury, Government System Verification Test (G-SVT) if necessary.</p> <p><b>FY 2016 Plans:</b><br/>DIACAP/Cooperative Vulnerability and Penetration Assessment (CVPA) Information Assurance (IA)/Cybersecurity, Electromagnetic Environmental Effects (E3), Environmental, Live Munition Firing Test (LMFT), Interactive Electronic Training Manual (IETM), Validation/Logistics Demo, Force Development Test (FDT), Initial Operational Test (IOT), and Army Interoperability Certification (AIC).</p> |  |  |                |                |
| <p><b>Title:</b> Program Management and Oversight</p> <p><b>Description:</b> Program Management and support of Spider Increment 1A.</p> <p><b>FY 2015 Accomplishments:</b><br/>Perform overall program management support for the execution of the Spider Inc 1A development effort. Oversee all contractor activities.</p> <p><b>FY 2016 Plans:</b><br/>Perform overall program management support for the execution of the Spider Inc 1A development effort and oversee Government Qualification Testing. Conduct all major Program Reviews to include Critical Design Design Review (CDR), oversee Government Qualification Testing. Prepare the Milestone C package to include the Capability Production Document (CPD) and other Acquisition Documents.</p>  |  | 0.633  | 0.350          | -              |
| <p><b>Title:</b> FY 2014-2016 Reductions</p> <p><b>Description:</b> Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR) and Federally Funded Research &amp; Development Centers (FFRDC) Reductions.</p> <p><b>FY 2015 Accomplishments:</b><br/>Adjustment in FY15 were in Small Business Innovative Research (SBIR) \$357,000, Small Business Technology Transfer Program (STTR) \$49,000, and Federally Funded Research &amp; Development Centers (FFRDC) \$6,000.00.</p> <p><b>FY 2016 Plans:</b></p>   |  | 0.412  | 0.226          | -              |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Army |  | <b>Date:</b> February 2016   |
| <b>Appropriation/Budget Activity</b><br>2040 / 5                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>434 / Anti-Personnel Landmine Alternatives (NSD) |

|   |                |                |                |
|---|----------------|----------------|----------------|
| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b> | <b>FY 2015</b> | <b>FY 2016</b> | <b>FY 2017</b> |
| Approximately \$226K projected adjustments in FY 2016.      |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>           | 10.265         | 4.290          | -              |

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

| <b>Line Item</b>   | <b>FY 2015</b> | <b>FY 2016</b> | <b>FY 2017 Base</b> | <b>FY 2017 OCO</b> | <b>FY 2017 Total</b> | <b>FY 2018</b> | <b>FY 2019</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>Cost To Complete</b> | <b>Total Cost</b> |
|--|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| • Spider - APLA Remote Control Unit: OPA2 Spider Increment 1 Program B55501    | 0.969          | 1.403          | 1.985               | -                  | 1.985                | 0.996          | -              | -              | -              | 0.000                   | 5.353             |
| • Spider Family Of Networked Munition: OPA2 Spider Increment 1A Program B54020 | -              | 9.199          | 10.796              | -                  | 10.796               | 10.655         | 9.402          | 8.423          | 8.936          | Continuing              | Continuing        |

**Remarks**

**D. Acquisition Strategy**

The Engineering Manufacturing Development (EMD) contract was a competitively awarded Cost Plus Incentive Fee EMD contract with a one year Firm-Fixed Price (FFP) Low Rate Initial Production (LRIP) option. A Government Level 3 Technical Data Package (TDP) will be delivered as part of the EMD contract. The modified TDP at the end of LRIP will facilitate full and open competition of a FFP Full Rate Production contract.

**E. Performance Metrics**

N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army** **Date:** February 2016

|  |  |  |
|--|--|--|
| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>434 / Anti-Personnel Landmine Alternatives (NSD) |
|--|--|--|

| <b>Management Services (\$ in Millions)</b>            |                        |                                 |             | FY 2015 |            | FY 2016 |            | FY 2017 Base |            | FY 2017 OCO |            | FY 2017 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          |                  |            |                          |
| Spider - Program Mgmt                                  | Various                | PM-CCS, : Picatinny Arsenal, NJ | 3.152       | 0.633   |            | 0.350   |            | -            |            | -           |            | -             | Continuing       | Continuing | 0                        |
| SBIR/STTR, FFRDC and Section 3001/3004 ATB Adjustments | Various                | PM CCS, : Picatinny Arsenal, NJ | 3.104       | 0.412   |            | 0.226   |            | -            |            | -           |            | -             | 0                | 3.742      | 0                        |
| <b>Subtotal</b>  |                        |                                 | 6.256       | 1.045   |            | 0.576   |            | -            |            | -           |            | -             | -                | -          | 0.000                    |

| <b>Product Development (\$ in Millions)</b> |                        |  |             | FY 2015 |            | FY 2016 |            | FY 2017 Base |            | FY 2017 OCO |            | FY 2017 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          |                  |            |                          |
| Spider Non-Lethal Launcher (FY12)           | SS/CPIF                | Alliant Techsystems Operations, LLC : Plymouth, MN | 0.667       | -       |            | -       |            | -            |            | -           |            | -             | 0                | 0.667      | 0                        |
| Spider Inc 1A (FY13-15)                     | C/CPIF                 | Northrop Grumman Systems Corporation : Carson, CA  | 19.829      | 3.369   | Dec 2015   | -       |            | -            |            | -           |            | -             | Continuing       | Continuing | 0                        |
| Rifleman Radio Systems                      | Reqn                   | General Dynamics, C4 Systems : Scottsdale, AZ      | 0.057       | -       |            | -       |            | -            |            | -           |            | -             | 0                | 0.057      | 0                        |
| <b>Subtotal</b>                             |                        |  | 20.553      | 3.369   |            | -       |            | -            |            | -           |            | -             | -                | -          | 0.000                    |

| <b>Support (\$ in Millions)</b>            |                        |                                |             | FY 2015 |            | FY 2016 |            | FY 2017 Base |            | FY 2017 OCO |            | FY 2017 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          |                  |            |                          |
| Spider - ARDEC Eng support                 | MIPR                   | ARDEC, : Picatinny Arsenal, NJ | 10.403      | 3.623   |            | 0.704   |            | -            |            | -           |            | -             | Continuing       | Continuing | 0                        |
| Spider - ARDEC Non-Lethal Launcher Eng Spt | MIPR                   | ARDEC, : Picatinny Arsenal, NJ | 1.561       | -       |            | -       |            | -            |            | -           |            | -             | 0                | 1.561      | 0                        |
| Mitre provide C4 Support                   | FFRDC                  | Mitre, : McLean, VA            | 2.840       | 0.280   |            | 0.400   |            | -            |            | -           |            | -             | Continuing       | Continuing | 0                        |

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army** **Date:** February 2016

|  |  |  |
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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>434 / Anti-Personnel Landmine Alternatives (NSD) |
|--|--|--|

| <b>Support (\$ in Millions)</b>               |                        |  |             | FY 2015 |            | FY 2016 |            | FY 2017 Base |            | FY 2017 OCO |            | FY 2017 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          |                  |            |                          |
| Spider - Millennium Engineering Support       | C/FFP                  | Millennium : Arlington, VA                                     | 1.951       | -       |            | 0.400   |            | -            |            | -           |            | -             | Continuing       | Continuing | 0                        |
| Spider - CECOM Engineering Support MOD        | C/CPFF                 | URS Federal Support Service : Lakehurst, NJ                    | 0.390       | -       |            | -       |            | -            |            | -           |            | -             | 0                | 0.390      | 0                        |
| Spider - CERDEC Engineering Support           | C/CPFF                 | CACI Technologies, INC : Chantilly, VA                         | 0.100       | 0.181   | Feb 2015   | -       |            | -            |            | -           |            | -             | 0                | 0.281      | 0                        |
| Spider - CERDEC Eng support                   | MIPR                   | CERDEC - SPACE AND TERRESTRIAL COMMS DIR : APG, MD             | 0.098       | 0.232   |            | -       |            | -            |            | -           |            | -             | Continuing       | Continuing | 0                        |
| Spider Increment 1A PEO STRI Training Support | MIPR                   | PEO STRI : Orlando, FL   | 0.050       | 0.100   |            | -       |            | -            |            | -           |            | -             | 0                | 0.150      | 0                        |
| ARL HRED MANPRINT/HFE Support                 | MIPR                   | ARL HRED : Adelphi, MD   | 0.209       | 0.208   |            | -       |            | -            |            | -           |            | -             | 0                | 0.417      | 0                        |
| Night Vision Electronic Sensors Directorate   | C/CPFF                 | Fibertek : Herndon, VA   | 0.000       | 0.163   | Jan 2015   | -       |            | -            |            | -           |            | -             | 0                | 0.163      | 0                        |
| Spider 1A Maint & Engr SPT DOTC Contract      | C/CPFF                 | Advanced Technology International (ATI) : North Charleston, SC | 0.000       | 0.194   | Mar 2015   | -       |            | -            |            | -           |            | -             | 0                | 0.194      | 0                        |
| Spider 1A Maint & Engr SPT IDIQ Contract      | C/IDIQ                 | Advanced Technology International (ATI) : North Charleston, SC | 0.000       | 0.168   | Aug 2015   | -       |            | -            |            | -           |            | -             | 0                | 0.168      | 0                        |
| <b>Subtotal</b>                               |                        |  | 17.602      | 5.149   |            | 1.504   |            | -            |            | -           |            | -             | -                | -          | 0.000                    |

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army** **Date:** February 2016

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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>434 / Anti-Personnel Landmine Alternatives (NSD) |
|--|--|--|

| Test and Evaluation (\$ in Millions)              |                        |   |             | FY 2015 |            | FY 2016 |            | FY 2017 Base |            | FY 2017 OCO |            | FY 2017 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          |                  |            |                          |
| Support Contractor/<br>Government Test Activities | MIPR                   | OTC, AMSAA, AEC, ATEC, NIE, TSMO, ARDEC : Various | 0.234       | 0.702   |            | 2.210   |            | -            |            | -           |            | -             | Continuing       | Continuing | 0                        |
| <b>Subtotal</b>                                   |                        |   | 0.234       | 0.702   |            | 2.210   |            | -            |            | -           |            | -             | -                | -          | 0.000                    |

**Remarks**  
Not Applicable

|                            | Prior Years | FY 2015 | FY 2016 | FY 2017 Base | FY 2017 OCO | FY 2017 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| <b>Project Cost Totals</b> | 44.645      | 10.265  | 4.290   | -            | -           | -             | -                | -          | 0.000                    |

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army** **Date:** February 2016

|  |  |  |
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| <b>Appropriation/Budget Activity</b><br>2040 / 5 | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / Landmine Warfare/Barrier - Eng Dev | <b>Project (Number/Name)</b><br>434 / Anti-Personnel Landmine Alternatives (NSD) |
|--|--|--|

| Event Name   | 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 |
| Spider Increment 1A Development                            |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Contractor DT  |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Government DT  |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Initial Operational Test (IOT)                             |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| MS C Documentation   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (1) MS C   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Interactive Electronic Training Manual (IETM) Verification |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (2) Full Rate Production Decision                          |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| (3) Initial Operational Capability                         |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |

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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2017 Army |   | <b>Date:</b> February 2016  |
| <b>Appropriation/Budget Activity</b><br>2040 / 5              | <b>R-1 Program Element (Number/Name)</b><br>PE 0604808A / <i>Landmine Warfare/Barrier - Eng Dev</i> | <b>Project (Number/Name)</b><br>434 / <i>Anti-Personnel Landmine Alternatives (NSD)</i> |

Schedule Details

| Events   | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| Spider Increment 1A Development                            | 4       | 2013 | 4       | 2016 |
| Contractor DT  | 3       | 2014 | 4       | 2015 |
| Government DT  | 3       | 2015 | 3       | 2016 |
| Initial Operational Test (IOT)                             | 2       | 2016 | 3       | 2016 |
| MS C Documentation   | 1       | 2016 | 4       | 2016 |
| MS C   | 4       | 2016 | 4       | 2016 |
| Interactive Electronic Training Manual (IETM) Verification | 3       | 2016 | 3       | 2016 |
| Full Rate Production Decision                              | 4       | 2017 | 4       | 2017 |
| Initial Operational Capability                             | 2       | 2018 | 2       | 2018 |