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| Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |         |         |              |                                                                                             |               |         |         | Date: February 2015 |         |                  |            |
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| Appropriation/Budget Activity<br>2040: Research, Development, Test & Evaluation, Army I BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |         |         |              | R-1 Program Element (Number/Name)<br>PE 0603305A I Army Missile Defense Systems Integration |               |         |         |                     |         |                  |            |
| COST (\$ in Millions)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Prior Years | FY 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO                                                                                 | FY 2016 Total | FY 2017 | FY 2018 | FY 2019             | FY 2020 | Cost To Complete | Total Cost |
| Total Program Element                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -           | 23.117  | 25.795  | 10.347       | -                                                                                           | 10.347        | 9.725   | 9.638   | 11.040              | 12.295  | Continuing       | Continuing |
| TR5: Missile Defense Battlelab                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -           | 23.117  | 25.795  | 10.347       | -                                                                                           | 10.347        | 9.725   | 9.638   | 11.040              | 12.295  | Continuing       | Continuing |
| <b>Note</b><br>FY15 Congressional Add - Program Increase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |         |         |              |                                                                                             |               |         |         |                     |         |                  |            |
| <b>A. Mission Description and Budget Item Justification</b><br>This Program Element funds missile defense systems integration efforts for both the US Army Space and Missile Defense Command/Army Forces Strategic Command (USASMDC/ARSTRAT).<br><br>USASMDC/ARSTRAT: Headquarters, Department of the Army General Order 37, dated 16 October 2006, designated USASMDC/ARSTRAT as the Army proponent for space and ground-based midcourse defense (GMD), the Army integrator for global missile defense, and the Army Service Component Command (ASCC) of the U.S. Strategic Command (USSTRATCOM). Army Regulation (AR) 10-87 Army Commands, Army Service Component Commands, and Direct Reporting Units, dated 4 September 2007 and AR 5-22 The Army Force Modernization Proponent System dated 19 August 2009 designates USASMDC/ARSTRAT as the Army specified proponent for Global Missile Defense and Space/High Altitude capabilities. As the Army proponent for space, high altitude and GMD, USASMDC/ARSTRAT is responsible for developing warfighting concepts, conduct warfighting experiments to validate those concepts, identify capabilities needed to implement the validated concepts, and develop Doctrine, Organizations, Training, Material, Leadership & Education, Personnel, Facilities and Policy (DOTMLPF-P) solutions to realize the GMD capabilities. As the Army integrator for global missile defense, USASMDC/ARSTRAT is responsible for reviewing programs managed by the Army, other Services, Defense agencies and National agencies to ensure that they are correctly synchronized and will ultimately provide the capabilities required by USSTRATCOM to execute its global missile defense responsibilities.<br><br>Project TR5 funds United States Army Space and Missile Defense Command/ Army Strategic Command (USASMDC/ARSTRAT) efforts to develop the associated operational prototyping, experimentation, operational analysis, and modeling and simulation in support of current and future Forces. |             |         |         |              |                                                                                             |               |         |         |                     |         |                  |            |

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army                                                       |         |                                                        |              | Date: February 2015 |               |
| Appropriation/Budget Activity                                                                                    |         | R-1 Program Element (Number/Name)                      |              |                     |               |
| 2040: Research, Development, Test & Evaluation, Army I BA 4: Advanced Component Development & Prototypes (ACD&P) |         | PE 0603305A I Army Missile Defense Systems Integration |              |                     |               |
| B. Program Change Summary (\$ in Millions)                                                                       | FY 2014 | FY 2015                                                | FY 2016 Base | FY 2016 OCO         | FY 2016 Total |
| Previous President's Budget                                                                                      | 23.289  | 12.797                                                 | 12.203       | -                   | 12.203        |
| Current President's Budget                                                                                       | 23.117  | 25.795                                                 | 10.347       | -                   | 10.347        |
| Total Adjustments                                                                                                | -0.172  | 12.998                                                 | -1.856       | -                   | -1.856        |
| • Congressional General Reductions                                                                               | -       | -                                                      |              |                     |               |
| • Congressional Directed Reductions                                                                              | -       | -                                                      |              |                     |               |
| • Congressional Rescissions                                                                                      | -       | -                                                      |              |                     |               |
| • Congressional Adds                                                                                             | -       | 13.000                                                 |              |                     |               |
| • Congressional Directed Transfers                                                                               | -       | -                                                      |              |                     |               |
| • Reprogrammings                                                                                                 | -       | -                                                      |              |                     |               |
| • SBIR/STTR Transfer                                                                                             | -0.172  | -                                                      |              |                     |               |
| • Other Adjustments 1                                                                                            | -       | -0.002                                                 | -1.856       | -                   | -1.856        |
| Congressional Add Details (\$ in Millions, and Includes General Reductions)                                      |         |                                                        |              |                     |               |
| Project: TR5: Missile Defense Battlelab                                                                          |         |                                                        |              |                     |               |
| Congressional Add: Thermal Management Systems Prototypes                                                         |         |                                                        |              |                     |               |
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| Congressional Add Subtotals for Project: TR5                                                                     |         |                                                        |              |                     |               |
| Congressional Add Totals for all Projects                                                                        |         |                                                        |              |                     |               |
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| Exhibit R-2A, RDT&E Project Justification: PB 2016 Army |                |         |         |                 |                                                                                                |                  |         |         |                                                          | Date: February 2015 |                     |               |
| Appropriation/Budget Activity<br>2040 / 4               |                |         |         |                 | R-1 Program Element (Number/Name)<br>PE 0603305A / Army Missile Defense<br>Systems Integration |                  |         |         | Project (Number/Name)<br>TR5 / Missile Defense Battlelab |                     |                     |               |
| COST (\$ in Millions)                                   | Prior<br>Years | FY 2014 | FY 2015 | FY 2016<br>Base | FY 2016<br>OCO                                                                                 | FY 2016<br>Total | FY 2017 | FY 2018 | FY 2019                                                  | FY 2020             | Cost To<br>Complete | Total<br>Cost |
| TR5: Missile Defense Battlelab                          | -              | 23.117  | 25.795  | 10.347          | -                                                                                              | 10.347           | 9.725   | 9.638   | 11.040                                                   | 12.295              | Continuing          | Continuing    |
| Quantity of RDT&E Articles                              | -              | -       | -       | -               | -                                                                                              | -                | -       | -       | -                                                        | -                   |                     |               |

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

This Program Element funds missile defense systems integration efforts for both the US Army Space and Missile Defense Command/Army Forces Strategic Command (USASMDC/ARSTRAT).

USASMDC/ARSTRAT: Headquarters, Department of the Army General Order 37, dated 16 October 2006, designated USASMDC/ARSTRAT as the Army proponent for space and ground-based midcourse defense (GMD), the Army integrator for global missile defense, and the Army Service Component Command (ASCC) of the U.S. Strategic Command (USSTRATCOM). Army Regulation (AR) 10-87 Army Commands, Army Service Component Commands, and Direct Reporting Units, dated 4 September 2007 and AR 5-22 The Army Force Modernization Proponent System dated 19 August 2009 designates USASMDC/ARSTRAT as the Army specified proponent for Global Missile Defense and Space/High Altitude capabilities. As the Army proponent for space, high altitude and GMD, USASMDC/ARSTRAT is responsible for developing warfighting concepts, conduct warfighting experiments to validate those concepts, identify capabilities needed to implement the validated concepts, and develop Doctrine, Organizations, Training, Material, Leadership & Education, Personnel, Facilities and Policy (DOTMLPF-P) solutions to realize the GMD capabilities. As the Army integrator for global missile defense, USASMDC/ARSTRAT is responsible for reviewing programs managed by the Army, other Services, Defense agencies and National agencies to ensure that they are correctly synchronized and will ultimately provide the capabilities required by USSTRATCOM to execute its global missile defense responsibilities.

Project TR5 funds United States Army Space and Missile Defense Command/ Army Strategic Command (USASMDC/ARSTRAT) efforts to develop the associated operational prototyping, experimentation, operational analysis, and modeling and simulation in support of current and future Forces.

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>FY 2014</b> | <b>FY 2015</b> | <b>FY 2016</b> |
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| <b>Title:</b> Prototypes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 17.094         | 7.626          | 6.200          |
| <b>Description:</b> Funding is provided for the following efforts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |                |                |
| <b>FY 2014 Accomplishments:</b><br>Took the lessons learned from the FY13 efforts to continue to evaluate new technologies in realistic operating environments. This was accomplished by participating in and providing support to Unified Quest wargames and experiments to analyze and integrate technology to identify the feasibility integration into Army space, missile defense, and high altitude systems. The Space and Missile Defense Command participated and supported biennial rewrites of Army Capstone, Operational and Functional Concepts. Continued to provide operational manager support to STRATCOM, NORTHCOM and SOCOM Joint Technical Capability Demonstrations to ensure Army space, missile defense, and high altitude equities are represented in advanced |                |                |                |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2016 Army                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                           | <b>Date:</b> February 2015                                             |                |
| <b>Appropriation/Budget Activity</b><br>2040 / 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>R-1 Program Element (Number/Name)</b><br>PE 0603305A / <i>Army Missile Defense Systems Integration</i> | <b>Project (Number/Name)</b><br>TR5 / <i>Missile Defense Battlelab</i> |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                           | <b>FY 2014</b>                                                         | <b>FY 2015</b> |
| <p>technology developments by demonstrating military utility when applied to military equipment and techniques. Examples included: supporting multi service experiments and capability development of the national-directed Phased Adaptive Approach (PAA) for Ballistic Missile Defense (BMD) as it is applied to each of the regional COCOMs; and experimenting with operationally responsive space, space control, and high altitude capabilities to ensure the broader Army enterprises can leverage the advantages of these platforms for communications, Intelligence Surveillance and Reconnaissance (ISR), position navigation, missile warning and command and control. Continued to develop mitigation strategies for Army forces to operate effectively in contested space, missile defense and cyber environments. Developing effective Integrated Missile Defense concepts for Army support to the Phased Adaptive Approach (PAA) being implemented within each regional COCOM. Based on the successful evaluation of Air/Event Information Sharing Services into NORTHCOM J6 decision support systems, we supported the transition of the application to a Joint Capabilities Technical Demonstration (JCTD). Supported TRADOC proponents with their responsibilities relative to doctrine, organization, training, material, leader development and education, personnel, and facilities plus related matters to continue leveraging space, missile defense, and high altitude proponent input to Joint Capabilities Integration and Development System, Science and Technology, Concept Development, Capability Development for Rapid Transition, and Capability Gap Analysis Army We sustained our core prototyping platforms, as outlined above. BC3 was upgraded to more realistically address information flows related to Close Air Support. Continued fabrication and test of components to develop a test-bed for enhanced thermal management technologies supporting missiles/TOCS/shelters and other systems utilizing mobile thermal management in realistic operating environments. Selected components were integrated with battlefield applications to support demonstrations of projected efficiencies with identified enhanced thermal management technologies.</p> <p><b>FY 2015 Plans:</b></p> <p>Take the lessons learned from the FY14 efforts to continue to evaluate new technologies in realistic operating environments. This is accomplished by participating in and providing support to Unified Quest wargames and experiments to analyze and integrate technology to identify the feasibility integration into Army space, missile defense, and high altitude systems. The Space and Missile Defense Command will participate and support biennial rewrites of Army Capstone, Operational and Functional Concepts. Continue to provide operational manager support to STRATCOM, NORTHCOM and SOCOM Joint Technical Capability Demonstrations to ensure Army space, missile defense, and high altitude equities are represented in advanced technology developments by demonstrating military utility when applied to military equipment and techniques. Examples include: supporting multi service experiments and capability development of the national-directed Phased Adaptive Approach (PAA) for Ballistic Missile Defense (BMD) as it is applied to each of the regional COCOMs; and experimenting with operationally responsive space, space control, and high altitude capabilities to ensure the broader Army enterprises can leverage the advantages of these platforms for communications, Intelligence Surveillance and Reconnaissance (ISR), position navigation, missile warning and command and control. Continue to develop mitigation strategies for Army forces to operate effectively in contested space, missile defense and cyber environments. Developing effective Integrated Missile Defense concepts for Army support to the Phased Adaptive Approach (PAA) being implemented within each regional COCOM. Will support TRADOC proponents with</p> |                                                                                                           |                                                                        |                |

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| Exhibit R-2A, RDT&E Project Justification: PB 2016 Army                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                | Date: February 2015                                      |         |         |
| Appropriation/Budget Activity<br>2040 / 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | R-1 Program Element (Number/Name)<br>PE 0603305A / Army Missile Defense<br>Systems Integration | Project (Number/Name)<br>TR5 / Missile Defense Battlelab |         |         |
| B. Accomplishments/Planned Programs (\$ in Millions)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                | FY 2014                                                  | FY 2015 | FY 2016 |
| their responsibilities relative to doctrine, organization, training, material, leader development and education, personnel, and facilities plus related matters to continue leveraging space, missile defense, and high altitude proponent input to Joint Capabilities Integration and Development System, Science and Technology, Concept Development, Capability Development for Rapid Transition, and Capability Gap Analysis Army We will sustain our core prototyping platforms, as outlined above. Battlespace Command and Control Center (BC3) will be upgraded to more realistically address information flows related to Close Air Support. Support MDA to Army BMDS element transition and transfer efforts including BMDS sensor deployments. Develop/defend Army requirements development / documentation to MDA spiral/block development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                |                                                          |         |         |
| FY 2016 Plans:<br>Take the lessons learned from the FY15 efforts to continue to evaluate new technologies in realistic operating environments. This is accomplished by participating in and providing support to Unified Quest wargames and experiments to analyze and integrate technology to identify the feasibility integration into Army space, missile defense, and high altitude systems. The Space and Missile Defense Command will participate and support biennial rewrites of Army Capstone, Operational and Functional Concepts. Continue to provide operational manager support to STRATCOM, NORTHCOM and SOCOM Joint Technical Capability Demonstrations to ensure Army space, missile defense, and high altitude equities are represented in advanced technology developments by demonstrating military utility when applied to military equipment and techniques. Examples include: supporting multi service experiments and capability development of the national-directed Phased Adaptive Approach (PAA) for Ballistic Missile Defense (BMD) as it is applied to each of the regional COCOMs; and experimenting with operationally responsive space, space control, and high altitude capabilities to ensure the broader Army enterprises can leverage the advantages of these platforms for communications, Intelligence Surveillance and Reconnaissance (ISR), position navigation, missile warning and command and control. Continue to develop mitigation strategies for Army forces to operate effectively in contested space, missile defense and cyber environments. Developing effective Integrated Missile Defense concepts for Army support to the Phased Adaptive Approach (PAA) being implemented within each regional COCOM. Will support TRADOC proponents with their responsibilities relative to doctrine, organization, training, material, leader development and education, personnel, and facilities plus related matters to continue leveraging space, missile defense, and high altitude proponent input to Joint Capabilities Integration and Development System, Science and Technology, Concept Development, Capability Development for Rapid Transition, and Capability Gap Analysis Army We will sustain our core prototyping platforms, as outlined above. Battlespace Command and Control Center (BC3) will be upgraded to more realistically address information flows related to Close Air Support. Support MDA to Army BMDS element transition and transfer efforts including BMDS sensor deployments. Develop/defend Army requirements development / documentation to MDA spiral/block development. |                                                                                                |                                                          |         |         |
| Title: Analysis, and Models and Simulations (M&S)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                | 6.023                                                    | 5.169   | 4.147   |
| Description: Funding is provided for the following efforts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                |                                                          |         |         |
| FY 2014 Accomplishments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                |                                                          |         |         |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2016 Army                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                           | <b>Date:</b> February 2015                                             |                |
| <b>Appropriation/Budget Activity</b><br>2040 / 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>R-1 Program Element (Number/Name)</b><br>PE 0603305A / <i>Army Missile Defense Systems Integration</i> | <b>Project (Number/Name)</b><br>TR5 / <i>Missile Defense Battlelab</i> |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                           | <b>FY 2014</b>                                                         | <b>FY 2015</b> |
| <p>Took the lessons learned from the FY13 efforts to continue to evaluate new technologies in realistic operating environments. This was accomplished by supporting ongoing efforts that provided the most realistic operating environment available to perform technology gap and cost reduction analysis of space, missile defense, and high altitude systems. Realistic operating environments were available to determine the ability of the specific technologies to fill capability gaps in terms of utility to the warfighter. Support of technology demonstrations, Analysis and Demonstration Tools/Test Beds for evolving space superiority and operationally responsive space concepts addressed emerging needs and continued to be expanded to ensure that advanced technology development can adequately enhance space, missile defense and high altitude systems. The Future Warfare Center (FWC) continued to provide program management for maintenance, sustainment, and development for Extended Air Defense Simulation (EADSIM), to provide the required fidelity for a synthetic operating environment to provide the capability to perform system and cost benefit analysis, operational planning, and exercise/experimentation support.</p> <p><b>FY 2015 Plans:</b><br/>: Take the lessons learned from the FY14 efforts to continue to evaluate new technologies in realistic operating environments. This will be accomplished by supporting ongoing efforts that provide the most realistic operating environment available to perform technology gap and cost reduction analysis of space, missile defense, and high altitude systems. Realistic operating environments will be available to determine the ability of the specific technologies to fill capability gaps in terms of utility to the warfighter. Support of technology demonstrations, Analysis and Demonstration Tools/Test Beds for evolving space superiority and operationally responsive space concepts will address emerging needs and continue to be expanded to ensure that advanced technology development can adequately enhance space, missile defense and high altitude systems. The FWC will continue to provide program management for maintenance, sustainment, and development for EADSIM delivering the required high fidelity synthetic operating environment to provide the capability to perform system and cost benefit analysis, operational planning, and exercise/ experimentation support</p> <p><b>FY 2016 Plans:</b><br/>:: Take the lessons learned from the FY15 efforts to continue to evaluate new technologies in realistic operating environments. This will be accomplished by supporting ongoing efforts that provide the most realistic operating environment available to perform technology gap and cost reduction analysis of space, missile defense, and high altitude systems. Realistic operating environments will be available to determine the ability of the specific technologies to fill capability gaps in terms of utility to the warfighter. Support of technology demonstrations, Analysis and Demonstration Tools/Test Beds for evolving space superiority and operationally responsive space concepts will address emerging needs and continue to be expanded to ensure that advanced technology development can adequately enhance space, missile defense and high altitude systems. The FWC will continue to provide program management for maintenance, sustainment, and development for Extended Air Defense Simulation (EADSIM) delivering the required high fidelity synthetic operating environment to provide the capability to perform system and cost benefit analysis, operational planning, and exercise/ experimentation support. The FWC will continue to provide program management</p> |                                                                                                           |                                                                        |                |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2016 Army |                                                                                                           | <b>Date:</b> February 2015                                             |  |
| <b>Appropriation/Budget Activity</b><br>2040 / 4                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0603305A / <i>Army Missile Defense Systems Integration</i> | <b>Project (Number/Name)</b><br>TR5 / <i>Missile Defense Battlelab</i> |  |

  

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|
| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>                                                                                                                                                                       | <b>FY 2014</b> | <b>FY 2015</b> | <b>FY 2016</b> |
| for maintenance, sustainment, and development for Reconfigurable Tactical Operations Simulator (RTOS) delivering operator in the loop capability for air and missile defense simulation in distributed exercises and experiments. |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>                                                                                                                                                                                 | 23.117         | 12.795         | 10.347         |

  

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>FY 2014</b> | <b>FY 2015</b> |
| <b>Congressional Add:</b> Thermal Management Systems Prototypes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | -              | 13.000         |
| <b>FY 2015 Plans:</b> Continued development of operational prototypes of several thermal management systems for the Army users. Development includes a rack cooling system for electronics for PATRIOT and the High Energy Laser Mobile Demonstrator (HEL MD); an environmental cooling unit to support field shelters; and a prototype of a directed energy thermal management system, initially designed to support HEL MD applications. Continued development of prototype system to test thermal management systems in a relevant environment prior to delivery to users. |                |                |
| <b>Congressional Adds Subtotals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | -              | 13.000         |

  

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

**Remarks**

  

**D. Acquisition Strategy**  
Not applicable for this item.

  

**E. Performance Metrics**  
N/A

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|                                                                               |                                   |                                                                           |                    |                |                   |                                                                                                    |                   |                     |                   |                    |                   |                                                                 |                         |                   |                                 |
|-------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------|--------------------|----------------|-------------------|----------------------------------------------------------------------------------------------------|-------------------|---------------------|-------------------|--------------------|-------------------|-----------------------------------------------------------------|-------------------------|-------------------|---------------------------------|
| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2016 Army             |                                   |                                                                           |                    |                |                   |                                                                                                    |                   |                     |                   |                    |                   | <b>Date:</b> February 2015                                      |                         |                   |                                 |
| <b>Appropriation/Budget Activity</b><br>2040 / 4                              |                                   |                                                                           |                    |                |                   | <b>R-1 Program Element (Number/Name)</b><br>PE 0603305A / Army Missile Defense Systems Integration |                   |                     |                   |                    |                   | <b>Project (Number/Name)</b><br>TR5 / Missile Defense Battlelab |                         |                   |                                 |
| <b>Support (\$ in Millions)</b>                                               |                                   |                                                                           |                    | <b>FY 2014</b> |                   | <b>FY 2015</b>                                                                                     |                   | <b>FY 2016 Base</b> |                   | <b>FY 2016 OCO</b> |                   | <b>FY 2016 Total</b>                                            |                         |                   |                                 |
| <b>Cost Category Item</b>                                                     | <b>Contract Method &amp; Type</b> | <b>Performing Activity &amp; Location</b>                                 | <b>Prior Years</b> | <b>Cost</b>    | <b>Award Date</b> | <b>Cost</b>                                                                                        | <b>Award Date</b> | <b>Cost</b>         | <b>Award Date</b> | <b>Cost</b>        | <b>Award Date</b> | <b>Cost</b>                                                     | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| Experiments & technology enhancements of prototypes/tools and analysis.       | Various                           | Various Colorado Springs CO and Huntsville AL : Alabama, Colorado Springs | 67.577             | 13.314         |                   | 15.210                                                                                             |                   | 1.537               |                   | -                  |                   | 1.537                                                           | Continuing              | Continuing        | Continuing                      |
| Govt Support and Support Contracts                                            | Various                           | Various Colorado Springs CO and Huntsville AL : Alabama, Colorado Springs | 92.777             | 9.803          |                   | 10.585                                                                                             |                   | 8.810               |                   | -                  |                   | 8.810                                                           | Continuing              | Continuing        | Continuing                      |
| Small Business Innovation Research/Small Business Technology Transfer Program | Various                           | Various : Various                                                         | 0.155              | -              |                   | -                                                                                                  |                   | -                   |                   | -                  |                   | -                                                               | Continuing              | Continuing        | -                               |
| <b>Subtotal</b>                                                               |                                   |                                                                           | 160.509            | 23.117         |                   | 25.795                                                                                             |                   | 10.347              |                   | -                  |                   | 10.347                                                          | -                       | -                 | -                               |
|                                                                               |                                   |                                                                           | <b>Prior Years</b> | <b>FY 2014</b> |                   | <b>FY 2015</b>                                                                                     |                   | <b>FY 2016 Base</b> |                   | <b>FY 2016 OCO</b> |                   | <b>FY 2016 Total</b>                                            | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| <b>Project Cost Totals</b>                                                    |                                   |                                                                           | 160.509            | 23.117         |                   | 25.795                                                                                             |                   | 10.347              |                   | -                  |                   | 10.347                                                          | -                       | -                 | -                               |
| <b>Remarks</b>                                                                |                                   |                                                                           |                    |                |                   |                                                                                                    |                   |                     |                   |                    |                   |                                                                 |                         |                   |                                 |

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**Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army** **Date:** February 2015

|                                                  |                                                                                                       |                                                                 |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| <b>Appropriation/Budget Activity</b><br>2040 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603305A / Army Missile Defense<br>Systems Integration | <b>Project (Number/Name)</b><br>TR5 / Missile Defense Battlelab |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|

| Event Name                                                          | FY 2014                                                                         |   |   |   | FY 2015 |   |   |   | FY 2016 |   |   |   | FY 2017 |   |   |   | FY 2018 |   |   |   | FY 2019 |   |   |   | FY 2020 |   |   |   |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
|                                                                     | 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 |
| Experiments & technology enhancements of prototypes/tools and analy | Eval integration of tech identified in Wargame Campaign Plan and Analysis 12-14 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Release of Extended Air Defense Simulation Updates                  |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Offensive/Defensive Integration                                     |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Integrated Air and Missile Defense Battle Command System Study      |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Defense Design Shortfalls and Vulnerability                         |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Operational Analysis in Support of Joint Functional Component Comm  |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Electric Fires Analysis                                             |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| ENBAD Analysis                                                      |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| AN/TPY-2 FBM Transition and Transfer                                |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| AN/TPY-2 FBM DOTMLPF Integrated Change Recommendation               |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| AN/TPY-2 FBM Transition from MDA to Army                            |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Enhanced Thermal Management Testbed                                 |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Missile Defense Simulation Suppt to TRADOC ARCIC Experiment         |                                                                                 |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |

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|---------------------------------------------------|--|--|--|--|--|--|--|--|--|------------------------------------------------------------------------------------------------|---|---|---|---------|---|---------------------|---|----------------------------------------------------------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army |  |  |  |  |  |  |  |  |  |                                                                                                |   |   |   |         |   | Date: February 2015 |   |                                                          |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Appropriation/Budget Activity<br>2040 / 4         |  |  |  |  |  |  |  |  |  | R-1 Program Element (Number/Name)<br>PE 0603305A / Army Missile Defense<br>Systems Integration |   |   |   |         |   |                     |   | Project (Number/Name)<br>TR5 / Missile Defense Battlelab |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Event Name                                        |  |  |  |  |  |  |  |  |  | FY 2014                                                                                        |   |   |   | FY 2015 |   |                     |   | FY 2016                                                  |   |   |   | FY 2017 |   |   |   | FY 2018 |   |   |   | FY 2019 |   |   |   | FY 2020 |   |   |   |
|                                                   |  |  |  |  |  |  |  |  |  | 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 |
| Joint Capabilities Mix Study (JCM4)               |  |  |  |  |  |  |  |  |  |                                                                                                |   |   |   |         |   |                     |   |                                                          |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |

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|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------|
| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2016 Army |                                                                                                           |                                                                        | <b>Date:</b> February 2015 |
| <b>Appropriation/Budget Activity</b><br>2040 / 4              | <b>R-1 Program Element (Number/Name)</b><br>PE 0603305A / <i>Army Missile Defense Systems Integration</i> | <b>Project (Number/Name)</b><br>TR5 / <i>Missile Defense Battlelab</i> |                            |

**Schedule Details**

| <b>Events</b>                                                                 | <b>Start</b>   |             | <b>End</b>     |             |
|-------------------------------------------------------------------------------|----------------|-------------|----------------|-------------|
|                                                                               | <b>Quarter</b> | <b>Year</b> | <b>Quarter</b> | <b>Year</b> |
| Experiments & technology enhancements of prototypes/tools and analysis.       | 1              | 2014        | 4              | 2020        |
| Release of Extended Air Defense Simulation Updates                            | 4              | 2014        | 4              | 2020        |
| Offensive/Defensive Integration                                               | 1              | 2014        | 4              | 2015        |
| Integrated Air and Missile Defense Battle Command System Study                | 1              | 2014        | 2              | 2014        |
| Defense Design Shortfalls and Vulnerability                                   | 1              | 2014        | 4              | 2014        |
| Operational Analysis in Support of Joint Functional Component Command for IMD | 1              | 2014        | 4              | 2020        |
| Electric Fires Analysis                                                       | 1              | 2014        | 4              | 2015        |
| ENBAD Analysis                                                                | 3              | 2013        | 1              | 2015        |
| AN/TPY-2 FBM Transition and Transfer                                          | 3              | 2014        | 3              | 2014        |
| AN/TPY-2 FBM DOTMLPF Integrated Change Recommendation                         | 3              | 2017        | 3              | 2017        |
| AN/TPY-2 FBM Transition from MDA to Army                                      | 1              | 2015        | 4              | 2017        |
| Enhanced Thermal Management Testbed                                           | 1              | 2014        | 1              | 2016        |
| Missile Defense Simulation Suppt to TRADOC ARCIC Experiment                   | 2              | 2014        | 4              | 2021        |
| Joint Capabilities Mix Study (JCM4)                                           | 4              | 2014        | 4              | 2015        |