Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army											Date: February 2015	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603305A *I Army Missle 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

Note

FY15 Congressional Add - Program Increase

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army	Date: February 2015
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603305A *I Army Missle 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)	FY 2014	FY 2015
Project: TR5: *Missile Defense Battlelab*		
Congressional Add: *Thermal Management Systems Prototypes*	-	13.000
Congressional Add Subtotals for Project: TR5	-	13.000
Congressional Add Totals for all Projects	-	13.000

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army			Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603305A / *Army Missle Defense Systems Integration*	Project (Number/Name) TR5 / *Missile Defense Battlelab*	

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
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)	FY 2014	FY 2015	FY 2016
Title: Prototypes	17.094	7.626	6.200
Description: Funding is provided for the following efforts			
FY 2014 Accomplishments: 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			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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.			
FY 2015 Plans: 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			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** 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:*** 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) ***Description:*** Funding is provided for the following efforts ***FY 2014 Accomplishments:***	6.023	5.169	4.147

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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.			
FY 2015 Plans: : 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			
FY 2016 Plans: :: 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			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
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.			
Accomplishments/Planned Programs Subtotals	23.117	12.795	10.347

	FY 2014	FY 2015
Congressional Add: Thermal Management Systems Prototypes	-	13.000
FY 2015 Plans: 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.		
Congressional Adds Subtotals	-	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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army			Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603305A / *Army Missle Defense Systems Integration*	Project (Number/Name) TR5 / *Missile Defense Battlelab*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
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	-
		Subtotal	160.509	23.117		25.795		10.347		-		10.347	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	160.509	23.117		25.795		10.347		-		10.347	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

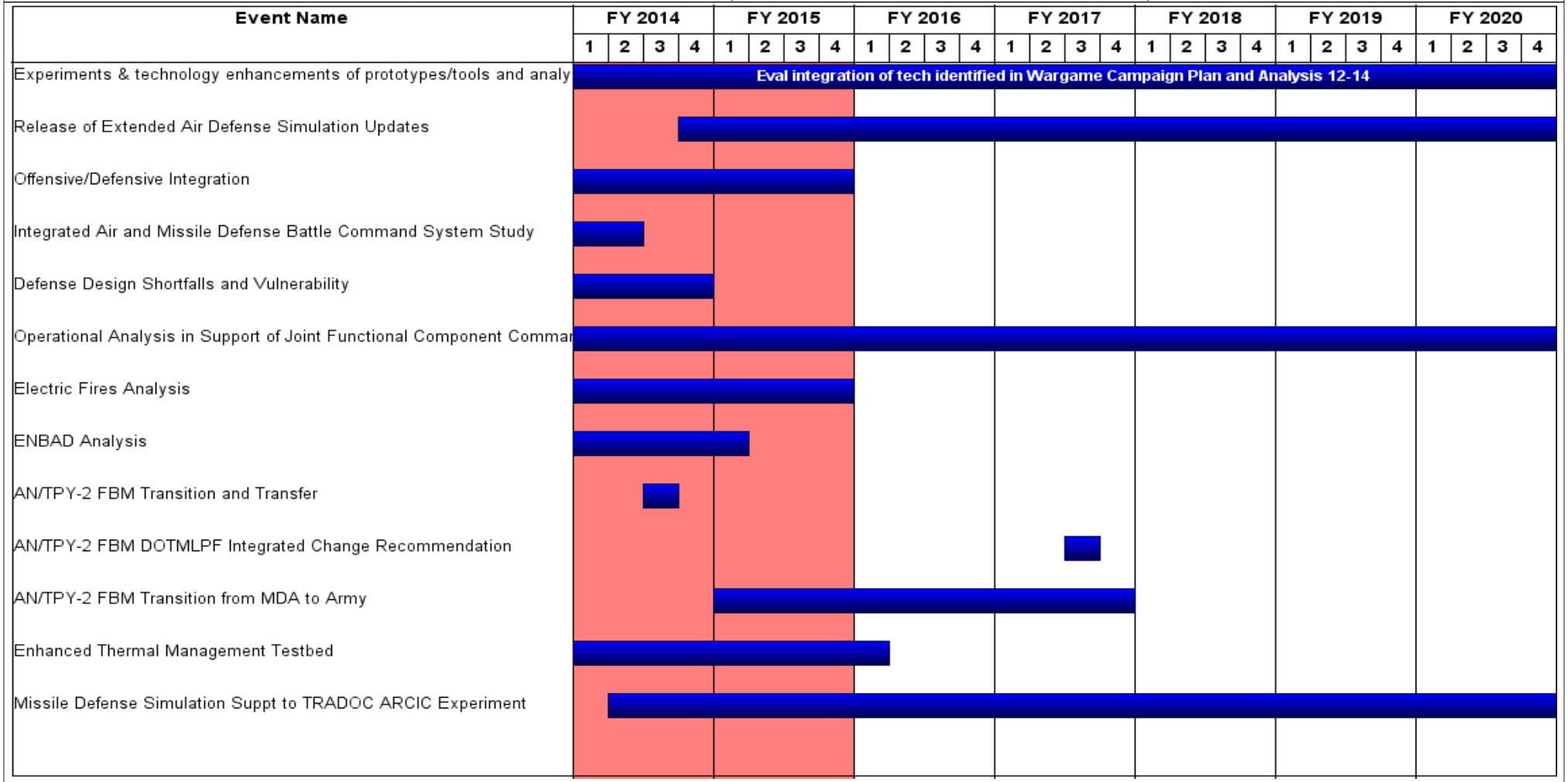

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

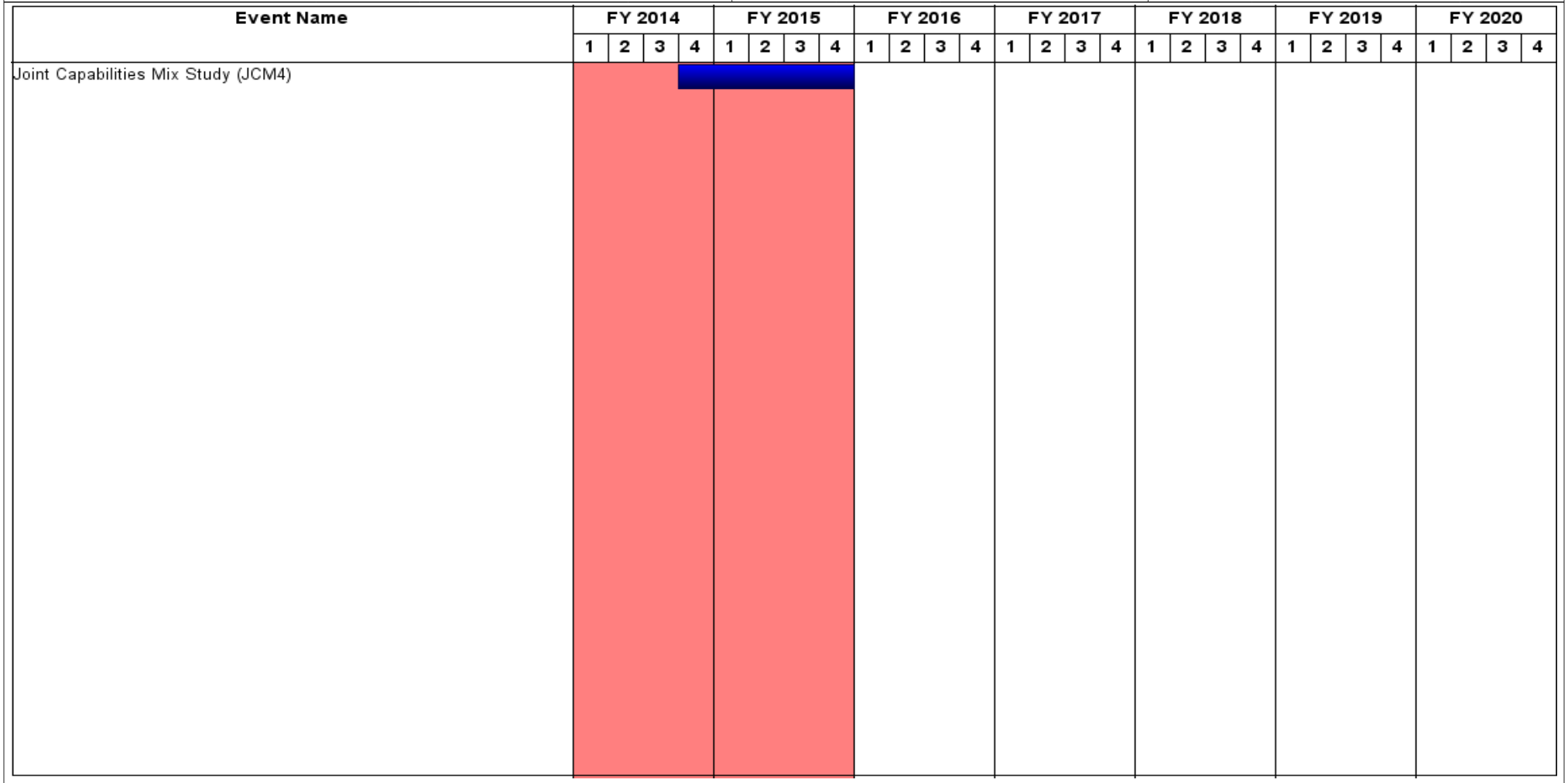

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
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