Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army											Date: February 2015	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0303032A / *TROJAN - RH12*							
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	-	3.463	0.983	5.022	-	5.022	4.473	4.476	4.567	4.623	Continuing	Continuing
RH5: *TROJAN - RH12 - MIP*	-	3.463	0.983	5.022	-	5.022	4.473	4.476	4.567	4.623	Continuing	Continuing

Note

FY16 reduction attributed to realignment ot other higher priority Army programs.

A. Mission Description and Budget Item Justification

This project is a Military Intelligence Program (MIP). TROJAN research and development supports TROJAN Next Generation (TROJAN NexGEN), formerly TROJAN Classic XXI (TCXXI), future capabilities to fulfill the Army's need for a worldwide, deployable, remotable, intelligence, surveillance and reconnaissance support that can dynamically execute operations from sanctuary-based to deployed assets in theater. In support of Army Modernization and Army Force Generation, TROJAN NexGEN will provide soldiers with a real-world, hands-on, live and near-real time SIGINT training environment sustaining, maintaining and enhancing their military occupational specialty proficiencies and specific target expertise. This operational readiness training will fulfill the Army's larger intelligence training requirement via a secure, collaborative architecture.

A key factor for future force success is the ability to collect, process, and use information about an adversary while preventing similar information from being disclosed. TROJAN NexGEN is a combined operational and readiness mission system which uses advanced networking technology to provide seamless rapid radio relay, secure communications to include voice, data, facsimile, and electronic reconnaissance support to U.S. forces throughout the world. TROJAN NexGEN operations may be easily tailored to fit military intelligence unit training schedules and surged during specific events to involve every aspect of the tactical intelligence collection, processing, analysis and reporting systems. Engineers test and evaluate new digital intelligence collection, processing and dissemination technology using the fielded TROJAN NexGEN systems prior to the acquisition of those technologies. As part of the objective intelligence architecture, these capabilities will enable processing and dissemination of real-time intelligence data from various sources to form the intelligence needed to issue orders inside the threat decision cycle. To that end, it is imperative that TROJAN NexGEN keeps pace with digitization initiatives in order to respond aggressively to the emerging intelligence communication threat.

Funding of $5.022M in FY16 will allow TROJAN NexGEN to integrate and test specialized hardware/software to include the REDHAWK architecture and direction finding/geo-location technologies, improve bandwidth utilization for increased network throughput, continue the development of enhanced receiver packages and a smaller SATCOM capability, and resource labor for software engineers.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army					Date: February 2015
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 5: *System Development & Demonstration (SDD)*		R-1 Program Element (Number/Name) PE 0303032A / *TROJAN - RH12*			
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	3.463	0.983	5.059	-	5.059
Current President's Budget	3.463	0.983	5.022	-	5.022
Total Adjustments	-	-	-0.037	-	-0.037
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-0.037	-	-0.037

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army			Date: February 2015
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303032A / *TROJAN - RH12*	Project (Number/Name) RH5 / *TROJAN - RH12 - MIP*	

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
RH5: *TROJAN - RH12 - MIP*	-	3.463	0.983	5.022	-	5.022	4.473	4.476	4.567	4.623	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Adjustment to FY15 funds the result of realignment to higher priorities.

A. Mission Description and Budget Item Justification

This project is a Military Intelligence Program (MIP). TROJAN research and development supports TROJAN Next Generation (TROJAN NexGEN), formerly TROJAN Classic XXI (TCXXI), future capabilities to fulfill the Army's need for a worldwide, deployable, remotable, intelligence, surveillance and reconnaissance support that can dynamically execute operations from sanctuary-based to deployed assets in theater. In support of Army Modernization and Army Force Generation, TROJAN NexGEN will provide soldiers with a real-world, hands-on, live and near-real time SIGINT training environment sustaining, maintaining and enhancing their military occupational specialty proficiencies and specific target expertise. This operational readiness training will fulfill the Army's larger intelligence training requirement via a secure, collaborative architecture.

A key factor for future force success is the ability to collect, process, and use information about an adversary while preventing similar information from being disclosed. TROJAN NexGEN is a combined operational and readiness mission system which uses advanced networking technology to provide seamless rapid radio relay, secure communications to include voice, data, facsimile, and electronic reconnaissance support to U.S. forces throughout the world. TROJAN NexGEN operations may be easily tailored to fit military intelligence unit training schedules and surged during specific events to involve every aspect of the tactical intelligence collection, processing, analysis and reporting systems. Engineers test and evaluate new digital intelligence collection, processing and dissemination technology using the fielded TROJAN NexGEN systems prior to the acquisition of those technologies. As part of the objective intelligence architecture, these capabilities will enable processing and dissemination of real-time intelligence data from various sources to form the intelligence needed to issue orders inside the threat decision cycle. To that end, it is imperative that TROJAN NexGEN keeps pace with digitization initiatives in order to respond aggressively to the emerging intelligence communication threat.

Funding of $5.022M in FY16 will allow TROJAN NexGEN to integrate and test specialized hardware/software to include the REDHAWK architecture and direction finding/geo-location technologies, improve bandwidth utilization for increased network throughput, continue the development of enhanced receiver packages and a smaller SATCOM capability, and resource labor for software engineers.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Integrate and test specialized hardware/software	0.705	0.203	0.900	-	0.900
Description: Integrate and test specialized hardware/software for classified pre-processing of new signals of interest utilizing enhanced signal processing algorithms. Resource development of GL Application Interface					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0303032A / *TROJAN - RH12*	**Project (Number/Name)** RH5 / *TROJAN - RH12 - MIP*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
for Virtual Environments (GLAIVE) software (SW). Integrated several new National Security Agency (NSA) SW packages. ***FY 2014 Accomplishments:*** Integrated and tested specialized hardware/software for classified pre-processing of new signals of interest utilizing enhanced signal processing algorithms. Resourced development of GLAIVE software. Integrated several new NSA SW packages. ***FY 2015 Plans:*** Integrate and test a scaled back suite of specialized hardware/software for classified pre-processing of new signals of interest utilizing enhanced signal processing algorithms and resource development of GLAIVE software. Conduct limited effort to develop TROJAN Intelligence Surveillance Reconnaissance enterprise. ***FY 2016 Base Plans:*** Will integrate and test specialized hardware/software for classified pre-processing of new signals of interest utilizing enhanced signal processing algorithms. Will resource development of GLAIVE software. Will continue efforts to develop TROJAN Intelligence Surveillance Reconnaissance enterprise. Continue efforts to integrate the REDHAWK architecture accross all platforms.					
Title: Improve bandwidth utilization to maximize efficiency (formerly Multi-bandwidth compression algorithms). ***Description:*** Acquire and apply multi-bandwidth compression algorithm technology to maximize TROJAN intelligence network throughput. ***FY 2014 Accomplishments:*** Acquired and applied multi-bandwidth compression algorithm technology to maximize TROJAN intelligence network throughput. ***FY 2015 Plans:*** Examine increasing efficiency and maximizing throughput via hardware consolidation and virtualization. ***FY 2016 Base Plans:*** Will improve bandwidth utilization and network architecture to maximize TROJAN intelligence network throughput.	0.307	0.089	0.960	-	0.960
Title: Development of receivers	0.245	0.071	0.330	-	0.330

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0303032A / *TROJAN - RH12*	**Project (Number/Name)** RH5 / *TROJAN - RH12 - MIP*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Description: Development of receiver packages for fixed and transportable TROJAN systems to acquire non-standard modulations using Digital System Processing (DSP) and Field Programmable Gate Arrays (FPGAs) technologies. ***FY 2014 Accomplishments:*** Conducted further development of receiver packages for fixed and transportable TROJAN systems to acquire non-standard modulations using DSP and FPGAs. ***FY 2015 Plans:*** Conduct a limited effort relating to the development of receiver packages for fixed and transportable TROJAN systems to acquire non-standard modulations using DSP and FPGAs. ***FY 2016 Base Plans:*** Will continue development of receiver packages for fixed and transportable TROJAN systems to acquire non-standard modulations using DSP and FPGAs.					
Title: Integrate Direction Finding and geo-location ***Description:*** Integrate Direction Finding (DF) and geolocation technologies into TROJAN Remote Receiving Groups. ***FY 2014 Accomplishments:*** Integrated Direction Finding (DF) and geolocation technologies into TROJAN Remote Receiving Groups. ***FY 2015 Plans:*** Continue to explore an effort to integrate Direction Finding (DF) and geolocation technologies into TROJAN Remote Receiving Groups. ***FY 2016 Base Plans:*** Will continue efforts to integrate Direction Finding (DF) and geolocation technologies into TROJAN Remote Receiving Groups.	0.653	0.225	1.263	-	1.263
Title: Development of Satellite Communication (SATCOM) dishes and receivers ***Description:*** Development of smaller more mobile Satellite Communication (SATCOM) dishes and receivers. Development of more efficient use of bandwidth, communications on the move and man-packable intelligence collection systems. ***FY 2014 Accomplishments:***	0.532	0.101	0.744	-	0.744

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0303032A / *TROJAN - RH12*	**Project (Number/Name)** RH5 / *TROJAN - RH12 - MIP*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Developed smaller and more mobile SATCOM dishes and receivers. Developed more efficient use of bandwidth, communications on the move and man-packable intelligence collection systems. ***FY 2015 Plans:*** Continue development of smaller more mobile SATCOM dishes. ***FY 2016 Base Plans:*** Will continue development of smaller more mobile SATCOM dishes.					
Title: Develop specialized software enhancements to the TROJAN audio streaming subsystems ***Description:*** Develop specialized software enhancements to the TROJAN audio streaming subsystems to improve system redundancy and throughput capacity and system management capabilities; Investigate compression/processing technologies to reduce communications bandwidth requirements for remoted TROJAN systems, including streaming audio technologies. ***FY 2014 Accomplishments:*** Developed specialized software enhancements to the TROJAN audio streaming subsystems to improve system redundancy and throughput capacity and system management capabilities; Investigated compression/ processing technologies to reduce communications bandwidth requirements for remoted TROJAN systems, including streaming audio technologies. ***FY 2015 Plans:*** Continue development of specialized software enhancements to the TROJAN audio streaming subsystems to improve system redundancy and throughput capacity. ***FY 2016 Base Plans:*** Will continue development of specialized software enhancements to the TROJAN audio streaming subsystems to improve system redundancy and throughput capacity.	0.246	0.071	0.050	-	0.050
Title: Labor cost software (SW) engineers ***Description:*** Labor for two software (SW) engineers at NSA in support of GLAIVE and other above applicable efforts. Labor for one Material Developer (MAT DEV) technologist, one MAT DEV software and one MAT DEV Hardware (HW) engineer. ***FY 2014 Accomplishments:***	0.775	0.223	0.775	-	0.775

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0303032A / *TROJAN - RH12*	**Project (Number/Name)** RH5 / *TROJAN - RH12 - MIP*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Resourced labor for two SW engineers at NSA in support of GLAIVE and other above applicable efforts. Resourced labor for one MAT DEV technologist, one MAT DEV software and one MAT DEV HW engineer. ***FY 2015 Plans:*** Resource labor for one part-time SW engineer at NSA in support of GLAIVE and other above applicable efforts. Resource labor for one part-time MAT DEV software and one part-time MAT DEV HW engineer. ***FY 2016 Base Plans:*** Will resource labor for two SW engineers at NSA in support of GLAIVE and other above applicable efforts. Will resource labor for one MAT DEV technologist, one MAT DEV software and one MAT DEV HW engineer.					
Accomplishments/Planned Programs Subtotals	3.463	0.983	5.022	-	5.022

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• BA0326: *TROJAN (MIP)* *(OPA SSN BA0326)*	18.171	15.214	13.929	6.542	20.471	15.897	13.253	13.951	14.407	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Acquisition Strategy for the TROJAN NexGEN Systems supported by TROJAN RDT&E is to adapt and leverage from Commercial Off the Shelf (COTS) and Government Off the Shelf (GOTS) products. Additionally leverage off of development by DoD and other Government agencies to the greatest extent possible. TROJAN RDT&E is used to fund the development of enhancing these technologies to meet specific user requirements.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army			Date: February 2015
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303032A / *TROJAN - RH12*	Project (Number/Name) RH5 / *TROJAN - RH12 - MIP*	

Management Services ($ 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
Labor Costs Software (SW) Engineers	Various	NSA : MD	1.789	0.775	Oct 2013	0.223	Oct 2014	0.775	Oct 2015	-		0.775	-	3.562	-
		Subtotal	1.789	0.775		0.223		0.775		-		0.775	-	3.562	-

Product Development ($ 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
Improve bandwidth utilization to maximize efficiency	Various	APG : MD	0.733	0.307	Oct 2013	0.089	Oct 2014	0.960	Oct 2015	-		0.960	Continuing	Continuing	-
Development of Receivers	Various	APG : MD	0.700	0.245	Oct 2013	0.071	Oct 2014	0.330	Oct 2015	-		0.330	Continuing	Continuing	-
Integrate Direction Finding and geo-location	Various	APG : MD	0.759	0.653	Oct 2013	0.225	Oct 2014	1.263	Oct 2015	-		1.263	Continuing	Continuing	-
Develop Satellite Communications (SATCOM) Dishes and Receivers	Various	APG : MD	1.521	0.532	Oct 2013	0.101	Oct 2014	0.744	Oct 2015	-		0.744	Continuing	Continuing	-
Specialized Software Enhancements	Various	APG : MD	0.585	0.246	Oct 2013	0.071	Oct 2014	0.050	Oct 2015	-		0.050	Continuing	Continuing	-
Develop Hardware/ Software Interface	Various	APG : MD	0.445	-		-		-		-		-	-	0.445	-
		Subtotal	4.743	1.983		0.557		3.347		-		3.347	-	-	-

Test and Evaluation ($ 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
Integration and Testing of Hardware/Software	Various	APG : MD	1.274	0.705	Oct 2013	0.203	Oct 2014	0.900	Oct 2015	-		0.900	-	3.082	-
		Subtotal	1.274	0.705		0.203		0.900		-		0.900	-	3.082	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army			Date: February 2015
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0303032A / *TROJAN - RH12*	Project (Number/Name) RH5 / *TROJAN - RH12 - MIP*	

	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	7.806	3.463		0.983		5.022		-		5.022	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0303032A / *TROJAN - RH12*	**Project (Number/Name)** RH5 / *TROJAN - RH12 - MIP*

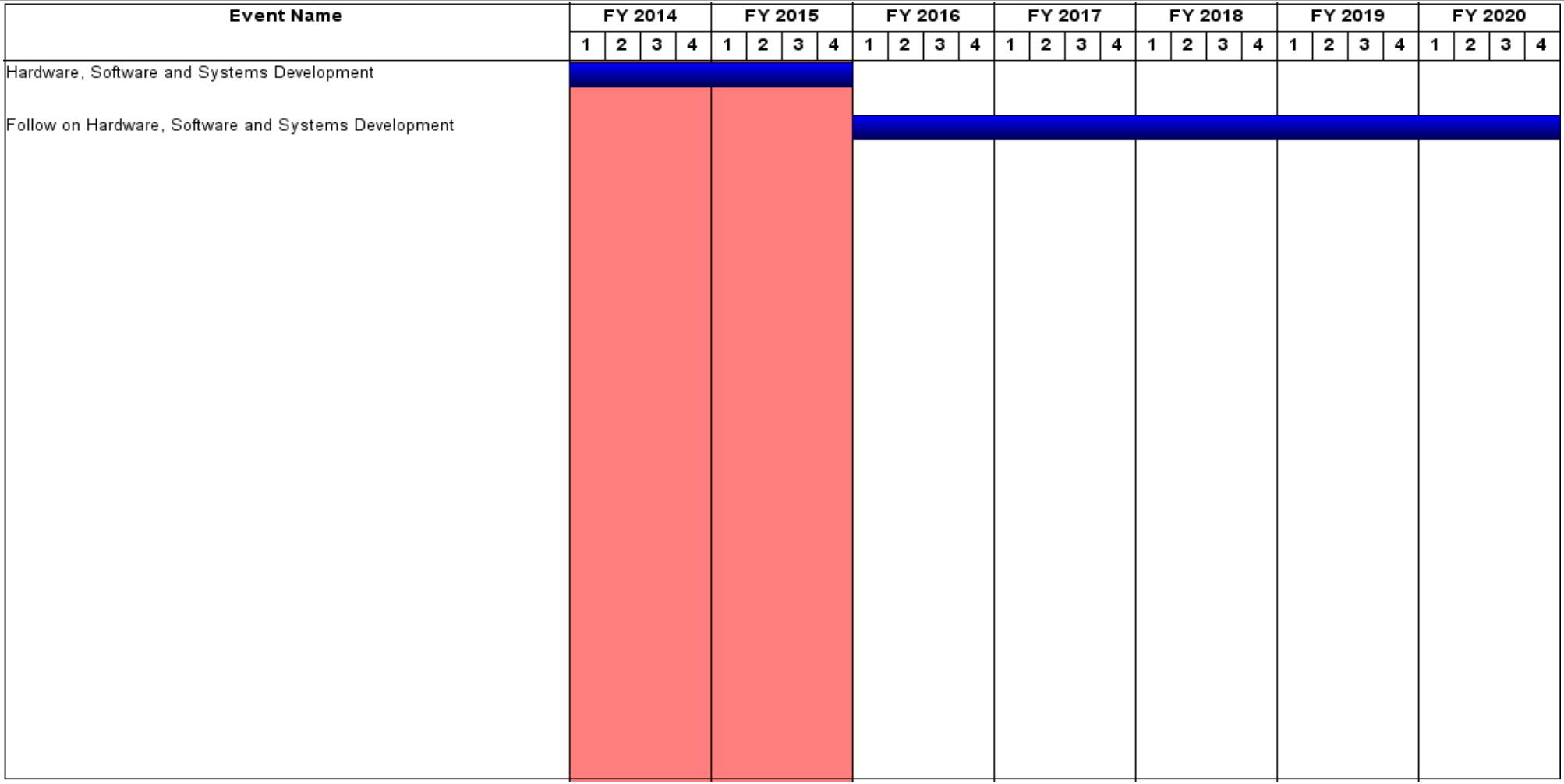

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0303032A / *TROJAN - RH12*	**Project (Number/Name)** RH5 / *TROJAN - RH12 - MIP*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Hardware, Software and Systems Development	1	2014	4	2015
Follow on Hardware, Software and Systems Development	1	2016	4	2020