Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	5.022	4.273	4.431	1.200	5.631	4.521	4.577	4.621	4.584	Continuing	Continuing
RH5: *TROJAN - RH12 - MIP*	-	5.022	4.273	4.431	1.200	5.631	4.521	4.577	4.621	4.584	Continuing	Continuing

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 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, 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.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	5.022	4.273	4.284	-	4.284
Current President's Budget	5.022	4.273	4.431	1.200	5.631
Total Adjustments	0.000	0.000	0.147	1.200	1.347
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	0.000	0.000	0.147	1.200	1.347

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Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0303032A *I TROJAN - RH12*

Change Summary Explanation

FY 2018 Base Funding increase of .147 million is an inflation rate increase.

FY 2018 OCO Funding increase of 1.200 million is in support of Army requirement to Integrate and test specialized hardware/software.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army			Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
RH5: *TROJAN - RH12 - MIP*	-	5.022	4.273	4.431	1.200	5.631	4.521	4.577	4.621	4.584	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Integrate Direction Finding and geo-location	1.263	1.118	1.077	-	1.077
Description: Integrate Direction Finding (DF) and geolocation (GL) technologies into TROJAN Remote Receiving Groups.					
FY 2016 Accomplishments: Continued efforts to integrate Direction Finding (DF) and geolocation technologies into TROJAN Remote Receiving Groups.					
FY 2017 Plans: Continue efforts to integrate Direction Finding (DF) and geolocation technologies into TROJAN Remote Receiving Groups in accordance with Joint Interface Control Document (JICD) 4.2. Utilize field based					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
risk reduction exercises to test and evaluate integrated technologies of the overall TROJAN Intelligence, Surveillance, and Reconnaissance (ISR) Enterprise. ***FY 2018 Base Plans:*** Will continue efforts to integrate Direction Finding (DF) and geolocation technologies into TROJAN Remote Receiving Groups in accordance with Joint Interface Control Document (JICD) 4.2. Will utilize field based risk reduction exercises to test and evaluate integrated technologies of the overall TROJAN Intelligence, Surveillance, and Reconnaissance (ISR) Enterprise.					
Title: Improve security of the TROJAN Network architecture (formerly Improve bandwidth utilization to maximize efficiency). ***Description:*** Acquire and apply multi-bandwidth compression algorithm technology to maximize TROJAN intelligence network throughput. ***FY 2016 Accomplishments:*** Improved bandwidth utilization and network architecture to maximize TROJAN intelligence network throughput. ***FY 2017 Plans:*** Utilize Government off the shelf (GOTS)/ Commercial of the shelf (COTS) solutions to secure data-at-rest / data-in-transit to extend the TROJAN intelligence network architecture to the edge. ***FY 2018 Base Plans:*** Will continue efforts to utilize Government off the shelf (GOTS) / Commercial of the shelf (COTS) solutions to secure data-at-rest / data-in-transit to extend the TROJAN intelligence network architecture to the edge.	0.960	1.186	1.376	-	1.376
Title: Integrate and test specialized hardware/software ***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 for Virtual Environments (GLAIVE) software (SW). Integrated several new National Security Agency (NSA) SW packages. ***FY 2016 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. Continued efforts	0.900	0.505	0.550	1.200	1.750

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
to develop TROJAN Intelligence Surveillance Reconnaissance enterprise. Continued efforts to integrate the REDHAWK architecture and JICD 4.2 across all platforms. ***FY 2017 Plans:*** Continue integration and testing of specialized hardware/software for classified pre-processing of new signals of interest utilizing enhanced signal processing algorithms. Continue resource development of GLAIVE software. Continue efforts to develop TROJAN Intelligence Surveillance Reconnaissance enterprise. Continue efforts to integrate the REDHAWK architecture and JICD 4.2 across all platforms. ***FY 2018 Base Plans:*** Will continue integration and testing of specialized hardware/software for classified pre-processing of new signals of interest utilizing enhanced signal processing algorithms. Will continue resource development of GLAIVE software. Will continue efforts to develop TROJAN Intelligence Surveillance Reconnaissance enterprise. Will continue efforts to integrate the REDHAWK architecture and JICD 4.2 across all platforms. ***FY 2018 OCO Plans:*** Will support integration, testing, and development of more advanced intelligence analysis tools and supports the assessment of TROJAN JICD 4.2 capabilities as part of the current TROJAN NexGEN SIGINT platforms. Will also support the testing and integration of the Intelligence Community Information Technology Enterprise (IC ITE) during interoperability exercises such as STORMFORCE and Enterprise Challenge.					
Title: Research and testing of receivers ***Description:*** Research and testing 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 2016 Accomplishments:*** Continued research and testing of receiver packages for fixed and transportable TROJAN systems to acquire non-standard modulations using DSP and FPGAs. ***FY 2017 Plans:*** Continue research and testing of receiver packages for fixed and transportable TROJAN systems to acquire non-standard modulations using DSP and FPGAs. ***FY 2018 Base Plans:***	0.330	0.295	0.255	-	0.255

Exhibit R-2A, RDT&E Project Justification: FY 2018 Army		Date: May 2017
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Will continue research and testing of receiver packages for fixed and transportable TROJAN systems to acquire non-standard modulations using DSP and FPGAs.					
Title: Development of Satellite Communication (SATCOM) dishes and transceivers ***Description:*** Development of smaller more mobile Satellite Communication (SATCOM) dishes and transceivers. Development of more efficient use of bandwidth, communications on the move and man-packable intelligence collection systems. ***FY 2016 Accomplishments:*** Continued development of smaller more mobile SATCOM dishes. ***FY 2017 Plans:*** Continue development of smaller tactical SATCOM dishes and transceivers to support beyond line of sight capabilities. ***FY 2018 Base Plans:*** Will continue development of smaller tactical SATCOM dishes and transceivers to support beyond line of sight capabilities.	0.744	0.371	0.375	-	0.375
Title: Develop specialized software enhancements to the TROJAN 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 2016 Accomplishments:*** Developed specialized software enhancements to the TROJAN audio streaming subsystems to improve system redundancy and throughput capacity. ***FY 2017 Plans:*** Research specialized software enhancements to improve system redundancy and throughput capacity to enable support for full motion video (FMV) streaming. ***FY 2018 Base Plans:*** Will continue efforts to develop specialized software enhancements to improve system redundancy and throughput capacity to enable support for full motion video (FMV) streaming.	0.050	0.023	0.023	-	0.023
Title: Labor cost software (SW) engineers	0.775	0.775	0.775	-	0.775

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Description: Labor for two software (SW) engineers 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 2016 Accomplishments:*** Resourced labor for two SW engineers in support of GLAIVE and other above applicable efforts. Resource labor for one MAT DEV technologist, one MAT DEV software and one MAT DEV HW engineer. ***FY 2017 Plans:*** Resource labor for one MAT DEV technologist, two MAT DEV software engineers and two MAT DEV HW engineers. ***FY 2018 Base Plans:*** Will continue to resource labor for one MAT DEV technologist, two MAT DEV software engineers and two MAT DEV HW engineers.					
Accomplishments/Planned Programs Subtotals	5.022	4.273	4.431	1.200	5.631

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• BA0326: *TROJAN (MIP)* *(OPA SSN BA0326)*	23.046	25.680	16.052	21.310	37.362	16.863	17.368	17.612	18.144	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