Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army											**Date:** March 2019	

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 0603766A *I Tactical Electronic Surveillance System - Adv Dev*							

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	27.733	35.667	34.890	-	34.890	26.257	29.299	31.285	33.987	Continuing	Continuing
907: *Tactical Exploitation Of National Capabilities-MIP*	-	27.733	35.667	34.890	-	34.890	26.257	29.299	31.285	33.987	Continuing	Continuing

Note

 All funding is in support of the ACTIVE COMPONENT

A. Mission Description and Budget Item Justification

 The Tactical Exploitation of National Capabilities (TENCAP) program serves as the Army's centralized lead to perform National Intelligence cross-agency engineering to evaluate, enhance, prototype, and transition Intelligence, Surveillance, and Reconnaissance (ISR) technologies/capabilities developed by Science and Technology (S&T) and other activities across the National Intelligence Community (IC) into Army systems and architectures. TENCAP: (1) ensures continued access to current National and Theater sensors and supporting tactical architectures; and (2) exploits new developments that focus on improving the Analysis and Tasking, Collection, Processing, Exploitation, Dissemination and Feedback (TCPEDF) of intelligence data. This includes efforts to: (1) shorten targeting timelines down to the Platoon level; (2) enhance target identification; (3) provide better target location (accuracy); (4) provide continued coverage of a target; and (5) develop in-theater analytic tools to enable data exploitation in near real-time support to contingency operations.

B. Program Change Summary ($ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	27.733	35.667	37.731	-	37.731
Current President's Budget	27.733	35.667	34.890	-	34.890
Total Adjustments	0.000	0.000	-2.841	-	-2.841
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-2.841	-	-2.841

UNCLASSIFIED

Exhibit R-2A, **RDT&E Project Justification:** PB 2020 Army											**Date:** March 2019	
Appropriation/Budget Activity 2040 / 4				**R-1 Program Element (Number/Name)** PE 0603766A / Tactical Electronic Surveillance System - Adv Dev				**Project (Number/Name)** 907 / Tactical Exploitation Of National Capabilities-MIP				
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
907: Tactical Exploitation Of National Capabilities-MIP	-	27.733	35.667	34.890	-	34.890	26.257	29.299	31.285	33.987	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
All funding is in support of the ACTIVE COMPONENT.

A. Mission Description and Budget Item Justification

The Tactical Exploitation of National Capabilities (TENCAP) program serves as the Army's centralized lead to perform National Intelligence cross-agency engineering to evaluate, enhance, prototype, and transition Intelligence, Surveillance and Reconnaissance (ISR) technologies/capabilities developed by Science and Technology (S&T) and other activities across the National Intelligence Community (IC) into Army systems and architectures. TENCAP: (1) ensures continued access to current National and Theater sensors and supporting tactical architectures; and (2) exploits new developments that focus on improving the Analysis and Tasking, Collection, Processing, Exploitation, Dissemination and Feedback (TCPEDF) of intelligence data. This includes efforts to: (1) shorten targeting timelines down to the Platoon level; (2) enhance target identification; (3) provide better target location (accuracy); (4) provide continued coverage of a target; and (5) develop in-theater analytic tools to enable data exploitation in near real-time support to contingency operations.

FY 2020 Base funding in the amount of $34.890 million provides: (1) engineering and collaborative development on multiple validated National Intelligence Community (IC) advanced software and prototype developments that leverage National IC investments for Army use and ensure continuous Army interoperability with National IC assets and architectures, e.g. Information Store (iStore), Scalable User-Defined Real-time GEOINT Environment (SURGE), ADV Pilot, GETS-Cedalion Transition, MERIT project management and transition; (2) Advanced Miniaturized Data Acquisition System (AMDAS) 'Next' system development; (3) advanced development of more effective intelligence collection, processing, exploitation and dissemination (PED); (4) advanced development of capabilities for Air Vigilance (AV) Army Program of Record; and (5) development of TENCAP Radio Frequency Exploitation (TRFE) effort to support future synchronization of SIGINT, Cyber and Electronic Warfare operations.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2018**	**FY 2019**	**FY 2020**
Title: TENCAP Cross-agency Core Engineering activities	15.836	10.594	13.605
Description: By utilizing organic and matrix engineering subject matter experts, TENCAP collaborates, develops and exploits emerging multi-intelligence based technologies to satisfy/accelerate Army Intelligence, Surveillance, Reconnaissance (ISR), Mission Command and Force Protection requirements. *FY 2019 Plans:*			

Exhibit R-2A, **RDT&E Project Justification:** PB 2020 Army		**Date:** March 2019
Appropriation/Budget Activity 2040 *I* 4	**R-1 Program Element (Number/Name)** PE 0603766A *I Tactical Electronic Surveillance System - Adv Dev*	**Project (Number/Name)** 907 *I Tactical Exploitation Of National Capabilities-MIP*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2018**	**FY 2019**	**FY 2020**
Continue work to incorporate Army requirements into earliest stages of National developments; Ensure Army access to sensors and multi-intelligence based capabilities; Monitor emerging technologies and systems; Exploit advances in commercial imagery and signal technologies; Develop prototypes that improve Army intelligence products. *FY 2020 Plans:* Will work to incorporate Army requirements into earliest stages of National developments; Ensure Army access to sensors and multi-intelligence based capabilities; Monitor emerging technologies and systems; Exploit advances in commercial imagery and signal technologies; Develop prototypes that improve Army intelligence products. *FY 2019 to FY 2020 Increase/Decrease Statement:* Funds increase to support TENCAP engineering and management efforts that includes initial studies and designs, and progresses to prototype development and testing.			
Title: Air Vigilance - Advanced Development *Description:* Enhance intelligence, force protection, and indications and warning capabilities under Army TENCAP program. *FY 2019 Plans:* Continue to develop advanced signal and software enhancements for Air Vigilance (AV) Army Program of Record. *FY 2020 Plans:* Will continue to develop advanced signal and software enhancements for Air Vigilance (AV) Army Program of Record that support the programs Capability Drops. *FY 2019 to FY 2020 Increase/Decrease Statement:* Funds increase to support software changes required by capability drop requirements and newly identified and/or evolving threats.	5.802	5.163	5.479
Title: Advanced Miniaturized Data Acquisition System(AMDAS)/ AMDAS Dissemination Vehicle (ADV) *Description:* Continue advanced engineering and development efforts to ensure continued interoperability and effectiveness of Army Corp-level TENCAP subsystems that provide national data to the tactical warfighter via intelligence community partners classified national systems. *FY 2019 Plans:* AMDAS Next: Development of TENCAP new prototype subsystem antenna, which will include modeling and simulation along with early developmental testing. Continued work on advance sensor development, and design ground processor, to ensure alignment with evolving national architectural enhancements as the National Technical Means (NTM) capabilities progress. *FY 2020 Plans:*	6.095	14.760	12.959

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 *I* 4	**R-1 Program Element (Number/Name)** PE 0603766A *I Tactical Electronic Surveillance System - Adv Dev*	**Project (Number/Name)** 907 *I Tactical Exploitation Of National Capabilities-MIP*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
AMDAS Next: Will continue the development of TENCAP new prototype subsystem antenna, which will include modeling and simulation along with early developmental testing. Continued work on advance sensor development, and design ground processor, to ensure alignment with evolving national architectural enhancements as the National Technical Means (NTM) capabilities progress. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funds decrease due to projected cost of the scope of work to be performed.			
Title: TENCAP Radio Frequency Exploitation (TRFE) ***Description:*** Prototype capability kit that informs, influences and enhances Terrestrial Layer Intelligence Support (TLIS) by targeting modern digital communications systems employed by near-peer nation state armies. Assists with Battlespace RF Characterization for modern communication environments with the intent to synchronize SIGINT, Cyber and Electronic Warfare operations. Utilizes commercial industry components and architectures to minimize hardware costs, risk and maximizes scalability/modularity. ***FY 2019 Plans:*** Initial Development of TRFE cognitive software based Electronic Warfare and Cyber Attack prototype capability focused on countering Peer State and modern communication targets and threats. ***FY 2020 Plans:*** Continue to develop the MULTI-INT TRFE cognitive software based SIGINT-Enabled Electronic Warfare and Cyber Attack prototype capability focused on countering Peer State and modern communication targets and threats. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funds decrease due to the projected scope of work for TENCAP Radio Frequency Exploitation (TRFE) advanced development and prototyping efforts.	-	5.150	2.847
Accomplishments/Planned Programs Subtotals	27.733	35.667	34.890

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 0605766A: *National Capabilities Integration (MIP)*	9.382	12.340	7.835	-	7.835	7.677	11.682	11.054	11.299	0.000	71.269

Remarks

Exhibit R-2A, **RDT&E Project Justification:** PB 2020 Army		**Date:** March 2019
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603766A / *Tactical Electronic Surveillance System - Adv Dev*	**Project (Number/Name)** 907 / *Tactical Exploitation Of National Capabilities-MIP*

D. Acquisition Strategy

The Army Tactical Exploitation of National Capabilities (TENCAP) mission is a Congressionally-mandated and chartered enduring requirement to leverage National Intelligence capabilities useful to the tactical Army. The Army TENCAP acquisition strategy is driven by an annual TENCAP General Officer Steering Group (TGOSG), co-chaired by the Army G2, Army G8, Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology [ASA(ALT)], and includes representatives from the Army G3, Army G6, Army Training and Doctrine Command (TRADOC), and the Program Executive Office for Intelligence, Electronic Warfare and Sensors (PEO IEW&S). The TGOSG reviews, validates, prioritizes, and guides Army TENCAP efforts, according to Army and Defense strategy. Based on the TGOSG guidance, Army TENCAP invests BA 6.4 RDTE in Intelligence Community (IC) developments during the more cost-effective advanced development phase to ensure Army requirements are met with minimal redundancy to Army investments. Army TENCAP then uses BA 6.5 RDTE to manage the transition of these advanced development efforts through system development and integration into Army Programs of Record (POR). This strategy ensures these leveraged investments remain viable through multiple budget cycles, significantly increasing successful transition to recipient Army PORs. With acquisition discipline and oversight provided by PEO IEW&S, Army TENCAP executes the TGOSG approved efforts through use of multiple contracts and agreements with the military, National Intelligence agencies, labs, industry partners and academia for the full duration required to complete development and transition these national capabilities into enduring Army programs.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army													**Date:** March 2019

Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603766A / Tactical Electronic Surveillance System - Adv Dev	**Project (Number/Name)** 907 / Tactical Exploitation Of National Capabilities-MIP

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Intelligence Engineers (SETA)	C/FPAF	Perspecta : Alexandria, VA	18.531	4.200	Feb 2018	3.033	Jan 2019	3.100	Jan 2020	-		3.100	0.000	28.864	Continuing
Intelligence Engineers(Matrix Gov)	MIPR	AGC : Alexandria, VA	5.977	1.280	Jan 2018	1.300	Jan 2019	1.300	Jan 2020	-		1.300	0.000	9.857	Continuing
		Subtotal	24.508	5.480		4.333		4.400		-		4.400	0.000	38.721	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TENCAP Core (Focus) Areas	Various	Multiple : Multiple	11.091	7.400	Jan 2018	3.103	Feb 2019	5.980	Feb 2020	-		5.980	0.000	27.574	Continuing
Air Vigilance	MIPR	Classified : MIPR	3.773	5.802	Jan 2018	5.163	Jan 2019	5.479	Jan 2020	-		5.479	0.000	20.217	Continuing
AMDAS/ADV	MIPR	Classified : MIPR	11.595	6.095	Jan 2018	14.760	Jan 2019	12.959	Jan 2020	-		12.959	0.000	45.409	Continuing
TRFE	MIPR	Classified : MIPR	-	-		5.150	Jan 2019	2.847	Jan 2020	-		2.847	0.000	7.997	Continuing
		Subtotal	26.459	19.297		28.176		27.265		-		27.265	0.000	101.197	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prgm Mgmt-Dir Gov,travel,etc.	Allot	Army TENCAP : Alexandria, VA	11.655	2.076	Jan 2018	2.258	Jan 2019	2.300	Jan 2020	-		2.300	0.000	18.289	Continuing
Secured Facilities	MIPR	Army Geospatial : Ft. Belvoir, VA	2.647	0.455	Jan 2018	0.475	Jan 2019	0.500	Jan 2020	-		0.500	0.000	4.077	Continuing
		Subtotal	14.302	2.531		2.733		2.800		-		2.800	0.000	22.366	N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2020 Army													**Date:** March 2019	

Appropriation/Budget Activity 2040 *I* 4	**R-1 Program Element (Number/Name)** PE 0603766A *I Tactical Electronic Surveillance System - Adv Dev*	**Project (Number/Name)** 907 *I Tactical Exploitation Of National Capabilities-MIP*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Lab Tests, Exercises, Simulations	MIPR	Multiple : Multiple	1.385	0.425	Jan 2018	0.425	Jan 2019	0.425	Jan 2020	-		0.425	0.000	2.660	Continuing
		Subtotal	1.385	0.425		0.425		0.425		-		0.425	0.000	2.660	N/A

	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	66.654	27.733	35.667	34.890	-	34.890	0.000	164.944	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 I 4	**R-1 Program Element (Number/Name)** PE 0603766A I *Tactical Electronic Surveillance System - Adv Dev*	**Project (Number/Name)** 907 I *Tactical Exploitation Of National Capabilities-MIP*

Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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

PE 0603766A: *Tactical Electronic Surveillance System ...*
Army

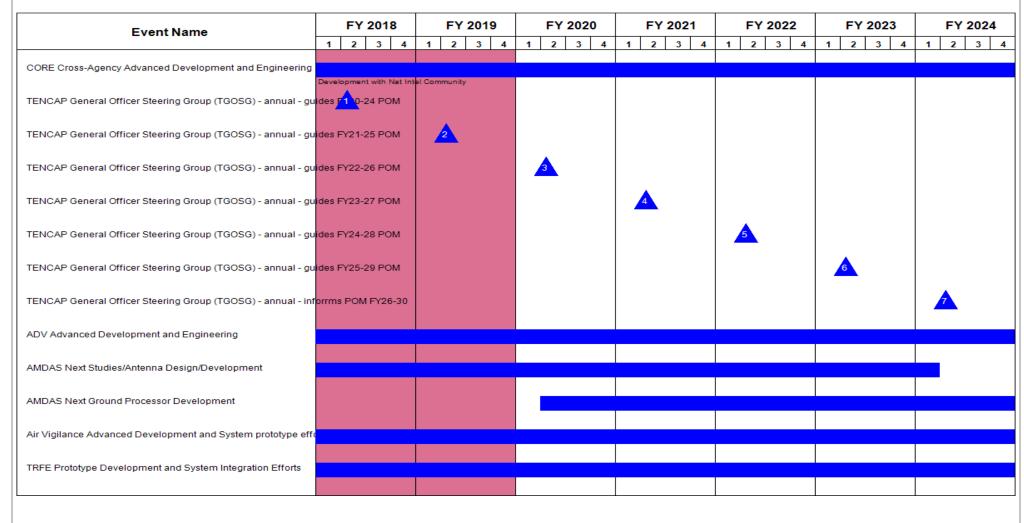| Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 *I* 4	**R-1 Program Element (Number/Name)** PE 0603766A *I Tactical Electronic Surveillance System - Adv Dev*	**Project (Number/Name)** 907 *I Tactical Exploitation Of National Capabilities-MIP*

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CORE Cross-Agency Advanced Development and Engineering	1	2018	4	2024
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY20-24 POM	2	2018	2	2018
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY21-25 POM	2	2019	2	2019
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY22-26 POM	2	2020	2	2020
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY23-27 POM	2	2021	2	2021
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY24-28 POM	2	2022	2	2022
TENCAP General Officer Steering Group (TGOSG) - annual - guides FY25-29 POM	2	2023	2	2023
TENCAP General Officer Steering Group (TGOSG) - annual - inforrms POM FY26-30	2	2024	2	2024
ADV Advanced Development and Engineering	2	2015	4	2024
AMDAS Next Studies/Antenna Design/Development	1	2018	1	2024
AMDAS Next Ground Processor Development	2	2020	4	2024
Air Vigilance Advanced Development and System prototype efforts	3	2013	4	2024
TRFE Prototype Development and System Integration Efforts	1	2018	4	2024