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 0605051A / *Aircraft Survivability Development*							
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	-	77.395	124.243	30.879	30.100	60.979	10.362	8.870	9.306	15.808	Continuing	Continuing
ER7: *Aircraft Survivability Equipment Development*	-	14.516	26.815	26.165	-	26.165	5.797	4.310	3.940	8.750	Continuing	Continuing
ER8: *Common Missile Warning System (CMWS)*	-	62.879	97.428	4.714	30.100	34.814	4.565	4.560	5.366	7.058	0.000	216.670

Note

Funds from projects EE3 (A/C Surv Equip Dev) and EE4 (Common Missile Warning System (CMWS)), Program Element (PE) 0605035A (Common Infrared Countermeasures (CIRCM)) are restructured to projects ER7 (Aircraft Survivability Equipment Development) and ER8 (Common Missile Warning System (CMWS)) respectively, PE 0605051A (Aircraft Survivability Development) for Fiscal Year (FY) 2016 and beyond for more efficient and effective program management.

A. Mission Description and Budget Item Justification

The Aircraft Survivability Development budget line includes Aircraft Survivability Equipment Development (ER7) and Common Missile Warning System (ER8). This budget line also includes funding for Joint Urgent Operational Needs Statement (JUONS) SO-0010 Phase 2a, Headquarters Department of the Army (HQDA) Directed Requirement for the Advanced Threat Warner and Common Infrared Countermeasures Quick Reaction Capability (ATW & CIRCM QRC), and the next generation missile warning system.

ER7: Aircraft Survivability Development.
The objective of the Aircraft Survivability Equipment (ASE) Development project is to improve Radio Frequency (RF) ASE for Army aviation. The APR-39 Radar Warning Receiver (RWR) detects, categorizes, and prioritizes RF emitters and provides a visual / aural alert to aircrew members warning them of targeting by RF-guided weapons. The Milestone Decision Authority (MDA) approved Phases 1 and 2 of a 3-phased path forward.

Phase 1 serves as an obsolescence / sustainment upgrade to the Processor Line Replaceable Unit (LRU) of the AN/APR-39A(V) RWR implemented to ensure that the currently fielded system remains viable until an affordable improved RF ASE capability can be pursued in Phases 2 and 3.

Phase 2, RWR Modernization, adopts the ongoing United States Navy Class I RWR Engineering Change Proposal (ECP), commonly referred to as the APR-39D(V)2 system. APR-39D(V)2 will significantly improve the RF threat coverage, automatic detection and identification of threat types, bearing, and lethality. Under Phase 2, the Army will develop enhancements to the APR-39D(V)2 as hardware upgrades needed to keep the APR-39D(V)2 technically relevant and address emerging Low Probability Intercept (LPI) and frequency agile threats.

Phase 3 adds active Electronic Countermeasures (ECM) jamming capability for selected aircraft; Materiel Development Decision (MDD) for this ECM jamming capability phase is not expected until later in the Future Years Defense Program (FYDP).

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605051A *I Aircraft Survivability Development*

Justification: Fiscal Year (FY) 2018 Base RDT&E funding of $26.165 million supports RWR software improvements and ECP development.

ER8: Common Missile Warning System (CMWS).
The US Army operational requirements concept for Aviation Infrared (IR) countermeasure systems is known as the Suite of Integrated Infrared Countermeasures (SIIRCM). SIIRCM is an integrated warning and countermeasure system to enhance aircraft survivability against IR-guided threat missile systems. The CMWS is a core element of the SIIRCM concept. CMWS is an integrated ultraviolet (UV) missile warning system, with an Improved Countermeasure Dispenser (ICMD) serving as a subsystem to a host aircraft.

The CMWS program is a UV missile warning system that cues both flare and laser-based countermeasures to defeat incoming IR-seeking missiles and will alert aircrews to the presence of certain incoming unguided munitions. The B-Kit consists of the components which perform the missile detection and aircrew notification, unguided munitions detection and aircrew notification, false alarm rejection, and countermeasure employment/cueing functions of the system. The CMWS Electronic Control Unit (ECU) receives UV missile detection data from Electro-Optic Missile Sensors (EOMS) and sends a missile alert signal to warn aircrews via on-board avionics. Tier 1 threat missiles detected and tracked by the CMWS are subsequently defeated by a combination of missile seeker countermeasures, including decoy flares and IR Laser Jamming (currently Advanced Threat Infrared Countermeasures (ATIRCM)-equipped CH-47 platform only). In addition, the CMWS ECU receives from the EOMS unguided munitions detection data which it also passes to the aircrew through aural and visual alerts. The aircrew then applies the appropriate Tactics, Techniques and Procedures (TTPs) to break contact or engage the enemy with own-ship ordnance. The CMWS Generation 3 (Gen 3) ECU in conjunction with ongoing software development efforts will address outstanding materiel release conditions to achieve a Full Materiel Release (FMR) for CMWS and ensure protection against emerging IR-guided missile threats.

The A-Kit for CMWS includes mounting hardware, wiring harnesses, cables, and other components necessary to install and interface the mission kit on host aircraft. The A-Kit ensures the mission kit is functionally and physically operational with a specific host aircraft type.

JUONS SO-0010 will integrate the Department of the Navy Large Aircraft Infrared Countermeasure (DoN LAIRCM) system on a select number of Army and SOCOM aircraft in the threat area of responsibility. The purpose of this JUONS is to detect and defeat proliferate Surface-to-Air Missiles (SAM) threats. HQDA has provided a follow up Directed Requirement to this JUONS to reduce Space, Weight and Power (SWaP) and accelerate delivery of Common Infrared Countermeasures (CIRCMs).

Justification:
CMWS: FY 2018 Base Research, Development, Test, and Evaluation (RDTE) dollars in the amount of $4.714 million fund development engineering of the Threat Analysis Database (TAD) and future sensor and algorithm analysis.

ATW & CIRCM QRC: FY 2018 OCO RDTE dollars in the amount of $30.100 million fund integration efforts to support the Advanced Threat Warner and Common Infrared Countermeasure Quick Reaction Capability (ATW & CIRCM QRC) in support of JUONS SO-0010 for the OIR theater of operations.

Joint Staff, J-8 Deputy Director for Requirements (DDR) memorandum, April 24, 2015
SOCOM JUONs SO-0010, Joint Rapid Acquisition Cell (JRAC) memorandum, May 29, 2015

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Army	Date: May 2017
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605051A *I Aircraft Survivability Development*

Directed Requirement for the Advanced Threat Warner and Common Infrared Countermeasure Quick Reaction Capability (ATW & CIRCM QRC) to Support Joint Urgent Operational Need (JUON) SO-0010, CIRCM Critical Intelligence Parameters Breach, 18 December 2015

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	78.112	114.243	98.447	-	98.447
Current President's Budget	77.395	124.243	30.879	30.100	60.979
Total Adjustments	-0.717	10.000	-67.568	30.100	-37.468
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-0.717	10.000	-67.568	30.100	-37.468

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2016	FY 2017
Project: ER8: *Common Missile Warning System (CMWS)*		
Congressional Add: *JUONS SO-0010 Phase 2a Congressional Add*	43.300	-
Congressional Add: *ATW & CIRCM QRC Congressional Add*	16.700	-
Congressional Add Subtotals for Project: ER8	60.000	-
Congressional Add Totals for all Projects	60.000	-

Change Summary Explanation

Funds were added due to emerging Man Portable Air Defense System (MANPADS) threat and Senior Leader and congressional interest in closing the gap between JUONS efforts and next Program of Record (PoR).

$55.810 million was transferred from PE 0605051A ASD project ER8 CMWS to PE 0605049A MWSM project XT4 ATDS in FY18 for more efficient and effective program management..

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 0605051A / *Aircraft Survivability Development*	Project (Number/Name) ER7 / *Aircraft Survivability Equipment Development*	

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
ER7: *Aircraft Survivability Equipment Development*	-	14.516	26.815	26.165	-	26.165	5.797	4.310	3.940	8.750	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Funds from project EE3 (A/C Surv Equip Dev), Program Element (PE) 0605035A (Common Infrared Countermeasures (CIRCM)) are restructured to project ER7 (Aircraft Survivability Equipment Development), PE 0605051A (Aircraft Survivability Development) for Fiscal Year (FY) 2016 and beyond for more efficient and effective program management.

A. Mission Description and Budget Item Justification

The objective of the Aircraft Survivability Equipment (ASE) Development project is to improve Radio Frequency (RF) ASE for Army aviation. The APR-39 Radar Warning Receiver (RWR) detects, categorizes, and prioritizes RF emitters and provides a visual / aural alert to aircrew members warning them of targeting by RF-guided weapons. The Milestone Decision Authority (MDA) approved Phases 1 and 2 of a 3-phased path forward.

Phase 1 serves as an obsolescence / sustainment upgrade to the Processor Line Replaceable Unit (LRU) of the AN/APR-39A(V) RWR implemented to ensure that the currently fielded system remains viable until affordable improved RF ASE capability can be pursued in Phases 2 and 3.

Phase 2, RWR Modernization, adopts the ongoing United States Navy Class I RWR Engineering Change Proposal (ECP), commonly referred to as the APR-39D(V)2 system. APR-39D(V)2 will significantly improve the RF threat coverage, automatic detection and identification of threat types, bearing, and lethality. Under Phase 2, the Army will develop enhancements to the APR-39D(V)2 as hardware upgrades needed to keep the APR-39D(V)2 technically relevant and address emerging Low Probability Intercept (LPI) and frequency agile threats.

Phase 3 adds active Electronic Countermeasures (ECM) jamming capability for selected aircraft; Materiel Development Decision (MDD) for this ECM jamming capability phase is not expected until later in the Future Years Defense Program (FYDP).

Justification: Fiscal Year (FY) 2018 Base RDT&E funding of $26.165 million supports RWR software improvements and ECP development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Phase 2 Radio Frequency Countermeasure (CM)	14.516	26.815	26.165	-	26.165
Description: Phase 2 Product Development (Digital RWR).					
FY 2016 Accomplishments:					

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 0605051A / *Aircraft Survivability Development*	**Project (Number/Name)** ER7 / *Aircraft Survivability Equipment Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Will fund RWR software development and emerging threats. ***FY 2017 Plans:*** Will fund Product Development - RWR software development and SIL updates, Support Costs - Contractor Support and Matrix Support; Test and Evaluation - Multi-Service Developmental Testing/Operational Testing (DT/OT) and Government System Test and Evaluation; and Management Services - Threat Management and Project Management. ***FY 2018 Base Plans:*** Will fund software improvement and ECP development, platform integration, Government Test and Evaluation and Support/Management services.					
Accomplishments/Planned Programs Subtotals	14.516	26.815	26.165	-	26.165

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
• AZ3511: *Radio Frequency CM (AZ3511)*	28.730	50.425	57.743	-	57.743	49.997	94.897	72.238	95.531	Continuing	Continuing

Remarks

D. Acquisition Strategy

Army RF ASE is managed by Project Manager ASE (PM ASE) for development, testing, procurement, integration and installation on Army rotary wing and small fixed wing aviation platforms. PM ASE proposed a three-phased path forward commensurate with user priorities and affordability considerations. The Milestone Decision Authority (MDA) approved Phases 1 and 2 of a 3-phased path forward.

Phase 1 addresses obsolescence/Diminishing Manufacturing Sources (DMS) issues associated with the currently fielded AN/APR-39A(V) RWR via sole source ECP awarded to the APR-39A manufacturer.

Phase 2 adopts the on-going United States Navy (USN) RWR Class I Correction of Deficiencies ECP commonly referred to as the APR-39D(V)2 system, limiting service-unique design, test, and integration expenses. Full Army participation throughout the remaining development, testing, procurement, fielding, and sustainment of the APR-39D(V)2 Digital RWR will address the significant Army RF capability gap while avoiding additional costs associated with a single-Service solution. This multi-Service approach also fields an effective and suitable material solution sooner to support the re-balance of the National Defense Strategy to the RF threat-heavy Asia-Pacific Region and European Region.

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 0605051A / *Aircraft Survivability Development*	**Project (Number/Name)** ER7 / *Aircraft Survivability Equipment Development*

Phase 3 will develop and integrate active Electronic Countermeasures jamming capability for select aircraft.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / *Aircraft Survivability Development*	Project (Number/Name) ER7 / *Aircraft Survivability Equipment Development*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Threat Management	Various	Various : -	8.833	0.006		0.282		0.284	Jan 2018	-		0.284	Continuing	Continuing	Continuing
Project Management	Various	Various : -	0.429	-		0.253		0.258	Jan 2018	-		0.258	Continuing	Continuing	Continuing
		Subtotal	9.262	0.006		0.535		0.542		-		0.542	-	-	-

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Digital Radar Warning Receiver (RWR)	Various	Lab Demo / Study : Various	10.634	-		-		-		-		-	Continuing	Continuing	Continuing
S/W Development	Various	OGA : Aberdeen Proving Grounds, MD	1.498	1.539		15.705		23.955	Jan 2018	-		23.955	Continuing	Continuing	Continuing
SIL Updates	MIPR	I2WD : Aberdeen Proving Grounds, MD	1.726	-		0.814		-		-		-	Continuing	Continuing	Continuing
Depot Standup	MIPR	Tobyhanna : Tobyhanna, PA	1.052	-		-		-		-		-	0.000	1.052	0.000
Platform Integration	Various	Multiple : -	1.844	2.672		-		0.036	Jan 2018	-		0.036	Continuing	Continuing	Continuing
		Subtotal	16.754	4.211		16.519		23.991		-		23.991	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Support	Various	Various : -	2.803	0.329		1.206		0.503	Jan 2018	-		0.503	Continuing	Continuing	Continuing
Matrix Support	Various	Various : -	6.430	0.370		0.117		-		-		-	Continuing	Continuing	Continuing
		Subtotal	9.233	0.699		1.323		0.503		-		0.503	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / *Aircraft Survivability Development*	Project (Number/Name) ER7 / *Aircraft Survivability Equipment Development*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Multi-Service DT/OT	Various	Various : -	1.582	1.405		0.255		0.379	Jan 2018	-		0.379	Continuing	Continuing	Continuing
Government System Test and Evaluation	Various	Various : -	5.916	8.195		8.183		0.750	Jan 2018	-		0.750	Continuing	Continuing	Continuing
		Subtotal	7.498	9.600		8.438		1.129		-		1.129	-	-	-

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	42.747	14.516		26.815		26.165		-		26.165	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605051A / *Aircraft Survivability Development*	**Project (Number/Name)** ER7 / *Aircraft Survivability Equipment Development*

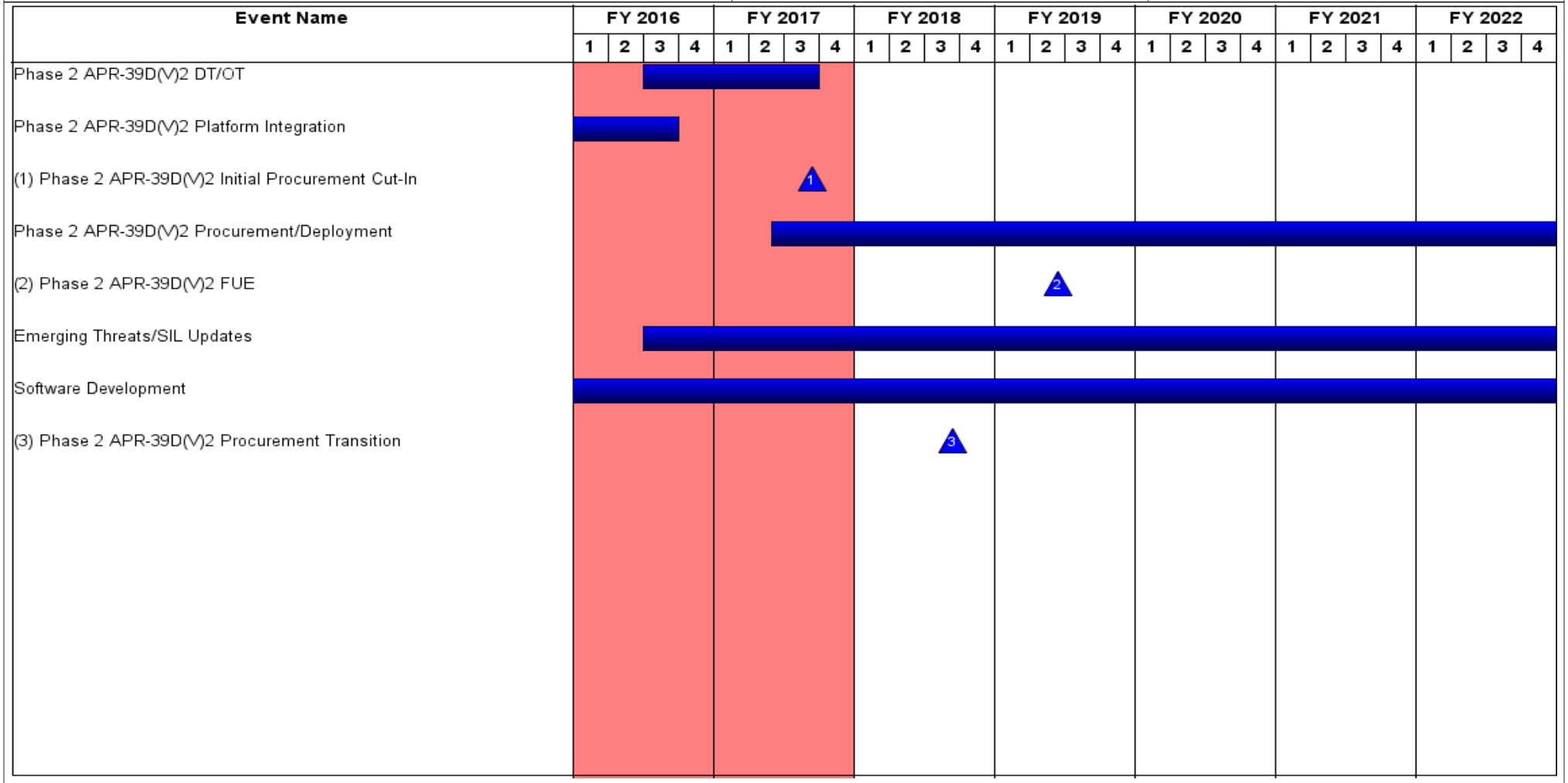

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605051A / *Aircraft Survivability Development*	**Project (Number/Name)** ER7 / *Aircraft Survivability Equipment Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Phase 2 APR-39D(V)2 DT/OT	3	2016	3	2017
Phase 2 APR-39D(V)2 Platform Integration	1	2014	3	2016
Phase 2 APR-39D(V)2 Initial Procurement Cut-In	3	2017	3	2017
Phase 2 APR-39D(V)2 Procurement/Deployment	2	2017	4	2022
Phase 2 APR-39D(V)2 FUE	2	2019	2	2019
Emerging Threats/SIL Updates	3	2016	4	2022
Software Development	1	2015	4	2022
Phase 2 APR-39D(V)2 Procurement Transition	3	2018	3	2018

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 0605051A / *Aircraft Survivability Development*	Project (Number/Name) ER8 / *Common Missile Warning System (CMWS)*		

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
ER8: *Common Missile Warning System (CMWS)*	-	62.879	97.428	4.714	30.100	34.814	4.565	4.560	5.366	7.058	0.000	216.670
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Funds from project EE4 (Common Missile Warning System (CMWS)), Program Element (PE) 0605035A (Common Infrared Countermeasures (CIRCM)) are restructured to project ER8 (Common Missile Warning System (CMWS)), PE 0605051A (Aircraft Survivability Development) for Fiscal Year (FY) 2016 and beyond for more efficient and effective program management.

A. Mission Description and Budget Item Justification

The US Army operational requirements concept for Aviation Infrared (IR) countermeasure systems is known as the Suite of Integrated Infrared Countermeasures (SIIRCM). SIIRCM is an integrated warning and countermeasure system to enhance aircraft survivability against IR-guided threat missile systems. The CMWS is a core element of the SIIRCM concept. CMWS is an integrated ultraviolet (UV) missile warning system, with an Improved Countermeasure Dispenser (ICMD) serving as a subsystem to a host aircraft.

The CMWS program is a UV missile warning system that cues both flare and laser-based countermeasures to defeat incoming IR-seeking missiles and will alert aircrews to the presence of certain incoming unguided munitions. The B-Kit consists of the components which perform the missile detection and aircrew notification, unguided munitions detection and aircrew notification, false alarm rejection, and countermeasure employment/cueing functions of the system. The CMWS Electronic Control Unit (ECU) receives UV missile detection data from Electro-Optic Missile Sensors (EOMS) and sends a missile alert signal to warn aircrews via on-board avionics. Tier 1 threat missiles detected and tracked by the CMWS are subsequently defeated by a combination of missile seeker countermeasures, including decoy flares and IR Laser Jamming (currently Advanced Threat Infrared Countermeasures (ATIRCM)-equipped CH-47 platform only). In addition, the CMWS ECU receives from the EOMS unguided munitions detection data which it also passes to the aircrew through aural and visual alerts. The aircrew then applies the appropriate Tactics, Techniques and Procedures (TTPs) to break contact or engage the enemy with own-ship ordnance. The CMWS Generation 3 (Gen 3) ECU in conjunction with ongoing software development efforts will address outstanding materiel release conditions to achieve a Full Materiel Release (FMR) for CMWS and ensure protection against emerging IR-guided missile threats.

The A-Kit for CMWS includes mounting hardware, wiring harnesses, cables, and other components necessary to install and interface the mission kit on host aircraft. The A-Kit ensures the mission kit is functionally and physically operational with a specific host aircraft type.

Joint Urgent Operational Needs Statement (JUONS) SO-0010 will integrate the Department of the Navy Large Aircraft Infrared Countermeasure (DoN LAIRCM) system on a select number of Army and Special Operations Command (SOCOM) aircraft in the threat area of responsibility. The purpose of this JUONS is to detect and defeat proliferate Surface-to-Air Missiles (SAM) threats. Headquarters Department of the Army (HQDA) has provided a follow up Directed Requirement to this JUONS to reduce Space, Weight and Power (SWaP) and accelerate delivery of Common Infrared Countermeasures (CIRCMs).

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 0605051A / *Aircraft Survivability Development*	**Project (Number/Name)** ER8 / *Common Missile Warning System (CMWS)*

Justification:
CMWS: FY 2018 Base Research, Development, Test, and Evaluation (RDTE) dollars in the amount of $4.714 million fund development engineering of the Threat Analysis Database (TAD) and future sensor and algorithm analysis.

ATW & CIRCM QRC: FY 2018 Overseas Contingency Operations (OCO) RDTE dollars in the amount of $30.100 million fund integration efforts to support the Advanced Threat Warner and Common Infrared Countermeasure Quick Reaction Capability (ATW & CIRCM QRC) in support of JUONS SO-0010 for the OIR theater of operations.

Joint Staff, J-8 Deputy Director for Requirements (DDR) memorandum, April 24, 2015
SOCOM JUONS SO-0010, Joint Rapid Acquisition Cell (JRAC) memorandum, May 29, 2015
Directed Requirement for the Advanced Threat Warner and Common Infrared Countermeasure Quick Reaction Capability (ATW & CIRCM QRC) to Support Joint Urgent Operational Need (JUON) SO-0010, CIRCM Critical Intelligence Parameters Breach, 18 December 2015

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: CMWS Product Development and Management Services	2.879	24.318	4.714	-	4.714
Description: RDTE funding supports continuing development engineering of the TAD, salaries, and integration with other ASE Systems. ***FY 2016 Accomplishments:*** FY 2016 Base RDTE dollars in the amount of $2.997 million will fund Product Development – TAD; and Management Services – CMWS Systems Engineering Program Management. ***FY 2017 Plans:*** FY 2017 Base RDTE dollars in the amount of $4.318 million will fund Product Development - TAD and Future Sensor and Algorithm Analysis; and Management Services - CMWS Systems Engineering Program Management. FY 2017 Base RDTE dollars in the amount of $20.000 million will fund Product Development - Advanced Missile Warning System Development Engineering; and Management Services – CMWS Systems Engineering Program Management. ***FY 2018 Base Plans:*** FY 2018 Base RDTE dollars in the amount of $4.714 million will fund Product Development - TAD and Future Sensor and Algorithm Analysis; and Management Services - CMWS Systems Engineering Program Management.					
Title: JUONS SO-0010 Phase 2a OCO	-	11.510	-	-	-

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 0605051A / *Aircraft Survivability Development*	**Project (Number/Name)** ER8 / *Common Missile Warning System (CMWS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Description: JUONS Phase 2a will integrate the Department of the Navy Large Aircraft Infrared Countermeasure (DoN LAIRCM) system on a select number of aircraft in the threat area of responsibility. ***FY 2017 Plans:*** blank					
Title: ATW & CIRCM QRC OCO ***Description:*** ATW/CIRCM QRC will displace JUONS Phase 2a to achieve reduction in SWaP. ***FY 2017 Plans:*** blank ***FY 2018 Base Plans:*** There is no FY18 Base funding for this effort. ***FY 2018 OCO Plans:*** Continue development and qualification of the new Army ATW processor and the ATW transfer alignment function. Complete software integration with the current ATW processor and begin the software integration with the new Army ATW processor. Continue QRC A-Kit development/Integration efforts for UH-60M, UH-60L, HH-60M, CH-47F, AH-64E, MH-47G and MH-60M. Funding will also support the modification of the JUONS SO-0010 Phase 2a A-Kit to accommodate the new Army ATW processor and CIRCM on all aircraft.	-	61.600	0.000	30.100	30.100
Accomplishments/Planned Programs Subtotals	2.879	97.428	4.714	30.100	34.814

	FY 2016	FY 2017
Congressional Add: JUONS SO-0010 Phase 2a Congressional Add ***FY 2016 Accomplishments:*** FY 2016 Base RDTE dollars in the amount of $43.300 million will fund Product Development – JUONS SO-0010 Phase 2a Prime Contractor – Integration Engineering and JUONS SO-0010 Phase 2a Aircraft Integration; and Management Services – JUONS SO-0010 Phase 2a Systems Engineering Program Management.	43.300	-
Congressional Add: ATW & CIRCM QRC Congressional Add ***FY 2016 Accomplishments:*** Begin ATW & CIRCM QRC development and qualification of the new Army ATW processor and the ATW transfer alignment function. Funding will also begin software integration with the current	16.700	-

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 0605051A / *Aircraft Survivability Development*	**Project (Number/Name)** ER8 / *Common Missile Warning System (CMWS)*

	FY 2016	FY 2017
ATW processor. Efforts will also begin on A-Kit development/Integration. Efforts will also include Army systems engineering and program management efforts.		
Congressional Adds Subtotals	60.000	-

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
• APA Funding:: *SSN AZ3517; BA4; CMWS*	104.348	97.741	37.225	89.520	126.745	32.719	18.775	10.917	61.000	69.608	521.853

Remarks

D. Acquisition Strategy

CMWS: The acquisition strategy includes buying CMWS B-Kits to support fielding requirements and installation of A-Kits on all modernized aircraft. The previous CMWS production contract was a firm fixed-priced (FFP), Indefinite Delivery, Indefinite Quantity (IDIQ) contract. A FFP bridge contract was awarded March 2013 for CMWS hardware. The follow-on CMWS production FFP/Cost Plus Fixed Fee (CPFF) IDIQ contract is a 3 year firm fixed price contract to procure the remaining Generation 3 Electronic Control Unit (ECU) and A-Kits and was awarded SEP 2013. The Gen 3 ECU, which provides increased processing capacity and enables unguided munitions detection, became a part of the system in FY 2010; First Unit Equipped (FUE) for the Gen 3 ECU was achieved in Operation Enduring Freedom (OEF) on 18 September 2013. All aircraft deployed to OEF have received the new processor with hostile fire detection capability. Gen 3 ECUs will gradually replace all Gen 2 ECUs across the Aviation fleet between now and 2017.

JUONS Phase 2a and ATW & CIRCM QRC: JUONS SO-0010 acquisition strategy includes aircraft prime contractor engineering support contracted to a Government test organization. Aircraft integration for JUONS will be handled through government operated organizations and industry partners.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / *Aircraft Survivability Development*	Project (Number/Name) ER8 / *Common Missile Warning System (CMWS)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CMWS Systems Engineering Program Management	Various	Various : PM ASE, HSV, AL	7.800	0.339	Mar 2016	0.387		0.370	Jan 2018	-		0.370	Continuing	Continuing	Continuing
Advanced Missile Warning System Systems Engineering Program Management	TBD	TBD : TBD	0.000	-		2.000		-		-		-	0.000	2.000	0.000
JUONS SO-0010 Phase 2a Systems Engineering Program Management	Various	Various : PM ASE, HSV, AL	0.000	0.317	Mar 2016	1.310		-		-		-	0.000	1.627	0.000
ATW & CIRCM QRC Systems Engineering Program Management	Various	Various : PM ASE, HSV, AL	0.000	1.600	Mar 2016	5.544		0.000		1.000	Jan 2018	1.000	Continuing	Continuing	Continuing
		Subtotal	7.800	2.256		9.241		0.370		1.000		1.370	-	-	-

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CMWS tier 2/3 Upgrades	Various	Various : -	2.000	-		-		-		-		-	Continuing	Continuing	Continuing
CMWS Threat Analysis Database Design	Various	BAE : Various	0.455	-		-		-		-		-	Continuing	Continuing	Continuing
CMWS Threat Analysis Database (TAD)	Various	BAE : Various	0.874	2.543	May 2016	2.131		2.188	Mar 2018	-		2.188	Continuing	Continuing	Continuing
CMWS Enhanced Sensor Study & Evaluation	Various	Various : -	11.466	-		-		-		-		-	0.000	11.466	0.000
CMWS Data Modeling	TBD	Various : Various	0.688	-		-		-		-		-	Continuing	Continuing	Continuing
CMWS Future Sensor and Algorithm Analysis	Various	Various : TBD	0.000	-		1.800		2.156	Mar 2018	-		2.156	Continuing	Continuing	Continuing
CMWS Prime Contractor--Integration Engineering	TBD	TBD,TBD : TBD	7.787	-		-		-		-		-	Continuing	Continuing	Continuing
CMWS Aircraft Integration	TBD	Various : Various	19.974	-		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / *Aircraft Survivability Development*	Project (Number/Name) ER8 / *Common Missile Warning System (CMWS)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CMWS Software	TBD	Various : Various	3.000	-		-		-		-		-	Continuing	Continuing	Continuing
Advanced Missile Warning System Development Engineering	TBD	TBD : TBD	0.000	-		18.000		-		-		-	0.000	18.000	0.000
JUONS SO-0010 Phase 2a Prime Contractor -- Integration Engineering	Various	Various : Various	0.000	3.742	Mar 2016	5.200		-		-		-	0.000	8.942	0.000
JUONS SO-0010 Phase 2a Software	Various	Various : Various	0.000	1.534	Mar 2016	-		-		-		-	0.000	1.534	0.000
JUONS SO-0010 Phase 2a Training	Various	Various : Various	0.000	0.200	Mar 2016	-		-		-		-	0.000	0.200	0.000
ATW & CIRCM QRC Development Engineering	TBD	TBD : TBD	0.000	-		-		0.000		5.100	Mar 2018	5.100	0.000	5.100	0.000
ATW & CIRCM QRC ATW System Development and Qualification	Various	Various : Various	0.000	29.453	Mar 2016	26.788		-		-		-	Continuing	Continuing	Continuing
ATW & CIRCM QRC Aircraft Integration	Various	Various : Various	0.000	1.442		25.548		-		-		-	Continuing	Continuing	Continuing
		Subtotal	46.244	38.914		79.467		4.344		5.100		9.444	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CMWS Test and Evaluation	TBD	Various : Various	16.156	-		-		-		-		-	Continuing	Continuing	Continuing
JUONS SO-0010 Phase 2a Test and Evaluation	Various	Various : Various	0.000	21.709		5.000		-		-		-	0.000	26.709	0.000
ATW & CIRCM QRC Test and Evaluation	Various	Various : Various	0.000	-		3.720		0.000		24.000	Mar 2018	24.000	Continuing	Continuing	Continuing
		Subtotal	16.156	21.709		8.720		0.000		24.000		24.000	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Army			Date: May 2017
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605051A / *Aircraft Survivability Development*	Project (Number/Name) ER8 / *Common Missile Warning System (CMWS)*	

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	70.200	62.879		97.428		4.714		30.100		34.814	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605051A / *Aircraft Survivability Development*	**Project (Number/Name)** ER8 / *Common Missile Warning System (CMWS)*

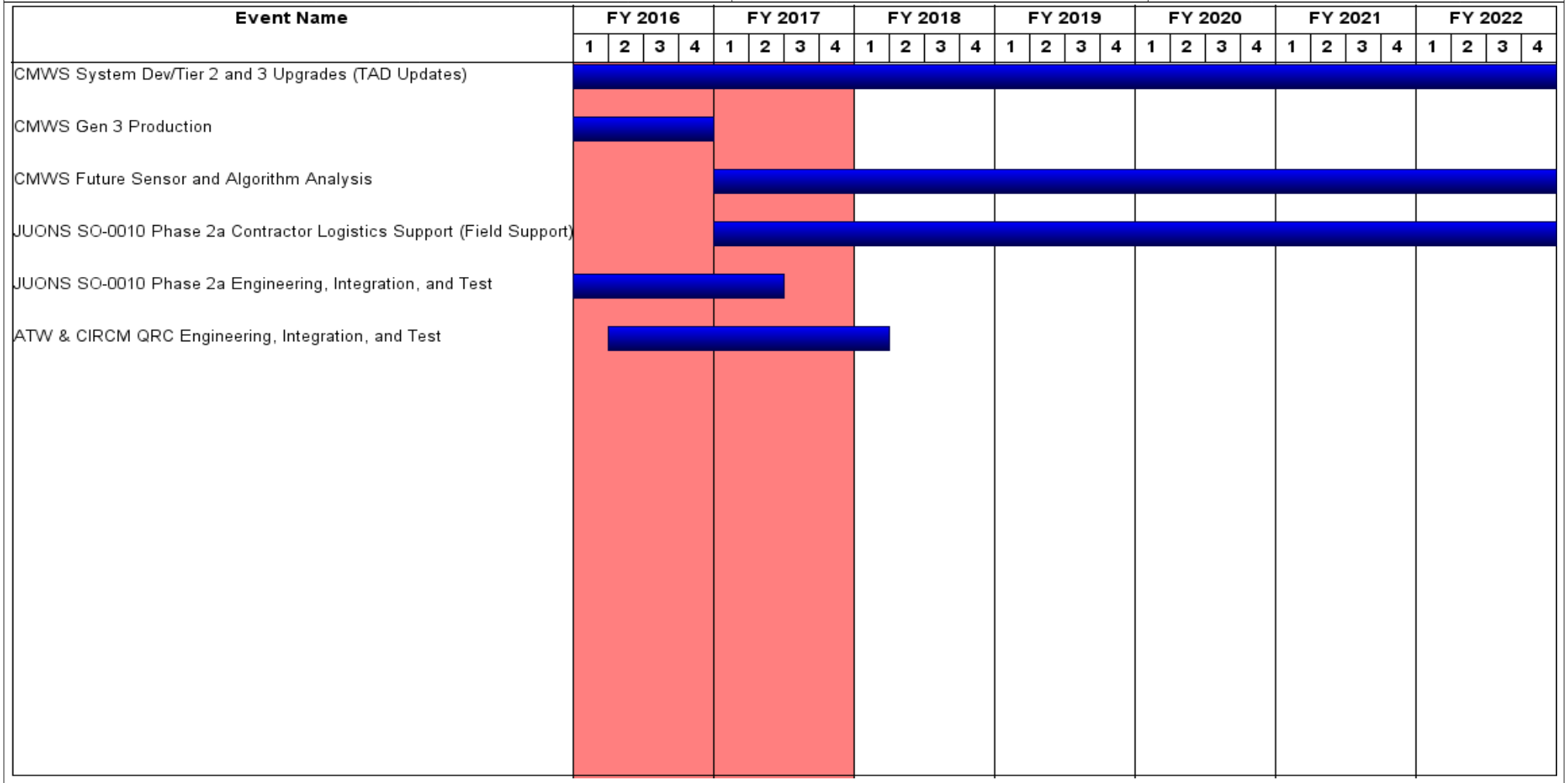

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Army		Date: May 2017
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605051A / *Aircraft Survivability Development*	**Project (Number/Name)** ER8 / *Common Missile Warning System (CMWS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CMWS System Dev/Tier 2 and 3 Upgrades (TAD Updates)	2	2011	4	2022
CMWS Gen 3 Production	3	2012	4	2016
CMWS Future Sensor and Algorithm Analysis	1	2017	4	2022
JUONS SO-0010 Phase 2a Contractor Logistics Support (Field Support)	1	2017	4	2022
JUONS SO-0010 Phase 2a Engineering, Integration, and Test	1	2016	2	2017
ATW & CIRCM QRC Engineering, Integration, and Test	2	2016	1	2018