Exhibit R-2, RDT&E Budget Item Justification: PB 2019 United States Special Operations Command	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	903.435	156.054	259.886	184.993	-	184.993	137.242	120.290	98.819	99.664	Continuing	Continuing
SF100: *Aviation Systems Advanced Development*	709.490	100.429	175.543	118.028	-	118.028	51.144	30.170	12.874	3.952	Continuing	Continuing
SF200: *CV-22*	2.993	0.651	14.259	22.344	-	22.344	28.211	10.139	9.672	18.000	Continuing	Continuing
S750: *Mission Training and Preparation Systems*	19.647	6.745	8.181	7.520	-	7.520	8.635	9.673	9.596	9.788	Continuing	Continuing
S875: *AC/MC-130J*	29.906	8.020	9.351	17.091	-	17.091	23.900	52.613	54.103	55.122	Continuing	Continuing
D615: *Rotary Wing Aviation*	141.399	40.209	52.552	20.010	-	20.010	25.352	17.695	12.574	12.802	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 212

A. Mission Description and Budget Item Justification

SF100 Aviation Systems Advanced Development:
This project provides for the development, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation and training requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: SOF specific avionics; Low Probability of Intercept/Low Probability of Detection Terrain Following/Terrain Avoidance (TF/TA) radar; Defensive Countermeasures; Electronic Warfare (EW) - Radio Frequency Countermeasures (RFCM); Precision Strike Package (PSP); PSP High Energy Laser; AC-130H/W/U and MC-130E/H/P, AC-130W, and AC-130U Recapitalization, and other SOF airborne platforms; digital terrain elevation data and electronic order of battle; digital maps; Airborne Mission Networking; near real-time Intelligence, Surveillance and Reconnaissance (ISR); data fusion; threat detection and avoidance; navigation, target detection, and identification technologies; weapons integration; digital broadcast capabilities; aerial refueling; survivability; and ISR payload technological improvements with size, weight, power and integration onto all SOF unmanned aircraft system (UAS) ISR platforms.

SF200 CV-22 Development/Test and Evaluation:
The CV-22 is a SOF variant of the V-22 vertical medium lift, multi-mission aircraft. The CV-22 project provides long range, high speed, infiltration, exfiltration, and resupply to Special Forces teams in hostile, denied, and politically sensitive areas. This is a capability not currently provided by other existing aircraft. The funding in this project supports integration, design, development, and test to provide improved capabilities to include, but not limited to, more robust performance in situational awareness, ISR, weapons, avionics, survivability, maneuverability, mission deployment and improved reliability and maintainability of the CV platform. CV-22 SOF Common TF/TA radar best known as Silent Knight Radar (SKR) or APQ-187, provides long-range, night/adverse weather, clandestine penetration of medium-to-high threat areas to infill, exfill, and resupply SOF forces. Provides more sustainable/capable replacement to obsolescing and tech limited terrain following/avoidance radar. There is a plan to develop a Defensive Weapon System (DWS) that gives a ~360 degree field of fire to suppress/eliminate enemy targets. This effort integrates the SOF unique Color Helmet Mounted Display (CHMD) with DWS providing necessary capability improvements identified during operational use and interim contract support.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 United States Special Operations Command	Date: February 2018
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S750 Mission Training and Preparation Systems:
The Special Operations Mission Planning and Execution (SOMPE) project funds the definition, design, development, prototyping, integration, and testing of SOMPE systems to support mission planning, rehearsal, and execution requirements to meet SOF-unique mission requirements and correct deficiencies in current mission planning, rehearsal, and execution capabilities. The Mission Training and Preparation Systems project also includes program management, systems engineering, configuration management, architecture development, risk reduction, and trade study initiatives, as well as initiatives to assure interoperability and commonality between diverse mission planning, rehearsal, and execution systems.

S875 AC/MC-130J:
The AC/MC-130J project funds core SOF-unique modifications to replace aging/retired AC-130H Spectre, AC-130W Stinger II, AC-130U Spooky, MC-130E Combat Talon I, MC-130P Combat Shadow, MC-130H Combat Talon II aircraft. The 8 AC-130H Spectre, 12 AC-130W Stinger II and 17 AC-130U Spooky airframes will be replaced with MC-130J aircraft modified with the PSP to achieve the AC-130J configuration. The AC-130J aircraft will provide close air support, air interdiction, and armed reconnaissance capability. The 14 MC-130E Talon I, 23 MC-130P Combat Shadow, and 20 MC-130H Talon II airframes will be replaced by MC-130J Commando II aircraft with SOF mission modifications. The MC-130J Commando II aircraft perform clandestine or low visibility, single or multi-ship low-level missions intruding politically-sensitive or hostile territories; provide air refueling for special operations helicopters and CV-22 aircraft; and airdrop of leaflets, insert small special operations teams, resupply bundles and combat rubber raiding craft. The Air Force procures and fields the basic aircraft, common support equipment, and trainers for USSOCOM. An incremental upgrade approach will be used to integrate SOF capabilities onto the aircraft and training systems. SOF capabilities include, but are not limited to, Airborne Mission Networking, data fusion, threat detection and avoidance, integrated terrain following/terrain avoidance, electronic warfare, and embedded training. Integrating and automating SOF mission systems that deliver these capabilities is critical to fielding SOF-capable AC/MC-130J aircraft to recapitalize Air Force Special Operations Command's legacy C-130 fleet.

D615 Rotary Wing Aviation:
This project develops SOF-unique modifications and upgrades to SOF rotary wing aircraft that operate in increasingly hostile environments. This project also includes modifications to Aircraft Survivability Equipment (ASE) and weapons systems to counter rapidly emerging threats, improve lethality and improve aircraft self-protection in contested environments. Rotary wing aircraft supported by this project include: MH-60M, MH-47G, and A/MH-6M. These aircraft provide aviation support to SOF in worldwide contingency operations and low-intensity conflicts. They must be capable of rapid deployment, undetected penetration of hostile areas, and operating at extended ranges under adverse weather conditions to infiltrate, provide logistics for, reinforce, and extract SOF. The anti-access/area denial (A2/AD) threat is characterized by an extensive and sophisticated ground based air defense system and an upgraded air-to-air capability targeted against helicopters.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 United States Special Operations Command	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	163.543	259.886	177.606	-	177.606
Current President's Budget	156.054	259.886	184.993	-	184.993
Total Adjustments	-7.489	0.000	7.387	-	7.387
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-0.890	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.671	-			
• SBIR/STTR Transfer	-5.928	-			
• Other	-	-	7.387	-	7.387

Change Summary Explanation

Funding:

FY 2017: Net decrease of -$7.489 million is due to a transfer of funds to Small Business Innovative Research/Small Business Technology Transfer programs (-$5.928 million), a congressional reduction for prior year carryover for SOMPE (-$0.890 million), and a decrease for higher command priorities (-$0.671 million).

FY 2018: None.

FY 2019: Net increase of $7.387 million is for completion of Phase III integration, testing, and Air Worthiness Release (AWR) for the A/MH-6 Block 3.0 Upgrade ($3.120 million); to complete development and testing of trial kit installation of EC-130J Block Upgrade ($1.263 million); testing of flares and chaff to address emerging threats for RW ASE Upgrades ($4.192 million); flight qualification and AWR testing of the Degraded Visual Environment solution ($3.222 million); continues PSP High Energy Laser (HEL) development of system architecture, acquire beam director subsystem and laser subsystem, interface control documentation, and completes risk reduction for AC-130J aircraft ($30.020 million); continues integration/testing of CV-22 SF Common TF/TA (Silent Knight) Radar ($0.898 million); higher command priorities (-$4.024 million); a Departmental economic assumption adjustment (-$1.482 million); and the FY 2019 funding request was reduced by -$29.822 million to account for the availability of prior year execution balances.

Schedule: Silent Knight Radar (SKR): Hardware failures with first 3 LRIP IIA radars delivered delayed Regression Testing and have delayed Initial Operational Test for the MH-60/MH-47 into 4th Quarter FY 2018. EC-130J SOF-Unique 7.0/8.1 development delay was due to a delay in the 7.0/8.1 Air Force modification contract.

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) SF100 / *Aviation Systems Advanced Development*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
SF100: *Aviation Systems Advanced Development*	709.490	100.429	175.543	118.028	-	118.028	51.144	30.170	12.874	3.952	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the investigation, evaluation, development, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation and training requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: SOF specific avionics; low probability of intercept/low probability of detection (LPI/LPD), terrain following/terrain avoidance (TF/TA) radar; Defensive Countermeasures (DCM) which includes Electronic Warfare – Radio Frequency Countermeasures (EW-RFCM); Precision Strike Package (PSP); AC-130H, AC-130W, and AC-130U recapitalization, and other SOF airborne platforms; digital terrain elevation data and electronic order of battle; digital maps; Airborne Mission Networking (AbMN); near-real-time intelligence to include data fusion, threat detection and avoidance; navigation, target detection and identification technologies; digital broadcast capability; aerial refueling; Survivability; and Intelligence, Surveillance, and Reconnaissance (ISR) payload technological improvements with size, weight, power and integration onto all SOF UAS ISR platforms.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: EC-130J Upgrades	5.161	-	1.252	-	1.252
Description: EC-130J Upgrades provides for integration of SOF-unique implementation of the C-130J block cycle upgrade to be installed on the EC-130J Commando Solo aircraft and development of digital broadcast capabilities.					
FY 2019 Base Plans: Develops a risk reduction plan for delayed development.					
FY 2018 to FY 2019 Increase/Decrease Statement: Increase of $1.252 million is to develop a risk reduction plan for delayed development.					
Title: EC-130J Commando Solo	-	-	1.179	-	1.179
Description: EC-130J Commando Solo supports development, integration and testing of digital broadcast capabilities on the EC-130J Commando Solo aircraft.					
FY 2019 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Develops and integrates emerging digital broadcast and antenna technologies into the Removable Airborne Military Information Support Operations (MISO) System (RAMS) Program. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $1.179 million supports development and integration of emerging digital broadcast and antenna technologies into the RAMS program.					
Title: EW – RFCM ***Description:*** EW-RFCM supports development, integration and test activities to provide EW capability against RF threats for SOF AC/MC-130J aircraft. The Defensive Countermeasures (DCM) suite is an integrated package of existing and future aircraft defensive systems which provides situational awareness and threat response processing that includes the RFCM system, and future defensive systems. The RFCM program provides SOF-unique aircraft defensive capabilities required for SOF missions. ***FY 2018 Plans:*** Complete fabrication, assembly and contractor hardware/software qualification testing for 5 Group A and 4 Group B systems. Continue integration and testing. Begin Government developmental ground, developmental flight and operational test activities to provide EW capability against RF threats for SOF AC/MC-130J aircraft. ***FY 2019 Base Plans:*** Continues integration and testing. Continues Government developmental and operational flight test activities to provide EW capability against RF threats for SOF AC/MC-130J aircraft. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease of $47.816 million supports the completion of fabrication & assembly and contractor qualification testing in FY 2018.	44.818	57.248	9.432	-	9.432
Title: PSP for SOF ***Description:*** PSP for SOF supports systems engineering, analysis, development, and enhancement of the baseline PSP and integration, installation, and test on host MC-130J aircraft provided by the U.S. Air Force for the AC-130H, AC-130W and AC-130U recapitalization, as well as current SOF AC-130Js and AC-130Ws, and other SOF platforms. Missions for the AC-130 aircraft include, but are not limited to, Close Air Support, Air Interdiction, and Armed Reconnaissance. PSP is modular, scalable, and platform neutral. ***FY 2018 Plans:***	9.919	13.512	18.354	-	18.354

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue development, integration, test, and system improvement of the PSP, to include defensive systems, EO/IR sensors and adverse weather capabilities on SOF C-130s and other SOF aircraft. ***FY 2019 Base Plans:*** Continues development, integration, test, and system improvement of the PSP, to include defensive systems, EO/IR sensors, adverse weather and special mission processor capabilities on SOF C-130s and other SOF aircraft. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $4.842 million is for the development, integration, test, and system improvement of all-weather capabilities of the PSP on SOF C-130s and other SOF aircraft.					
Title: PSP High Energy Laser (HEL) ***Description:*** The HEL demonstration will integrate a next generation Directed Energy Weapon System onto an AC-130. The effort demonstration will integrate mature laser sub-systems, (Beam Director, Laser, Thermal, and Power) to develop a prototype system. The prototype will be utilized for an operational evaluation and inform future requirements. The HEL components will be designed for modular upgrades and integrated with the PSP system. ***FY 2018 Plans:*** Develop system architecture, design trades, interface control documentation, and risk reduction for AC-130J aircraft. ***FY 2019 Base Plans:*** Continues development of system architecture, acquire beam director subsystem and laser subsystem, interface control documentation, and completes risk reduction for AC-130J aircraft. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $18.336 million to complete purchase of prototype laser and beam director subsystems.	-	15.650	33.986	-	33.986
Title: C-130 SOF Common TF/TA (Silent Knight) Radar ***Description:*** C-130 SOF Common TF/TA (Silent Knight) Radar supports integration and test of a TF/TA radar and on-board processor to provide a multi-mode terrain following capability on MC-130J aircraft. Crew systems integration efforts include modifications to aircraft controls and displays to automate TF/TA flight management	32.875	87.530	51.355	-	51.355

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
and reduce pilot, copilot and Combat Systems Officer workload during missions previously performed by five aircrew members on legacy C-130 tankers and penetrators. ***FY 2018 Plans:*** Continue SOF Common TF/TA (Silent Knight) radar and aircraft control and display integration efforts. Install TF radar system kits on two MC-130Js and begin MC-130J TF/TA developmental flight test. Begin training system development. Begin developing software for safety critical capabilities. ***FY 2019 Base Plans:*** Continues SOF Common TF/TA (Silent Knight) radar and aircraft control and display integration efforts. Installs TF radar system kits on a third MC-130J and continues MC-130J TF/TA developmental flight test. Continues training system development. Develops hardware and software for safety critical capabilities and integration issues on the Silent Knight Radar. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease of $36.175 million is due to completion of two MC-130J TF/TA radar installs and ramp down of TF/TA controls and display software.					
Title: SOF Common TF/TA (Silent Knight) Radar ***Description:*** SOF Common TF/TA (Silent Knight) Radar supports Engineering and Manufacturing Development (EMD), qualification, and operational flight testing of a SOF common TF/TA LPI/LPD radar to defeat advanced passive detection threats while maintaining ability to fly safe TF. The funding also supports design, development, integration, and testing for improved system capabilities to include, but not limited to, Aircraft Survivability Equipment (ASE) interoperability improvements and reduced TF signature management. This radar is targeted for use on MH-47G heavy assault helicopters, MH-60M medium assault helicopters, MC-130J Commando II and CV-22 Osprey aircraft. ***FY 2019 Base Plans:*** Begins design, development, integration, and testing of Silent Knight Radar ASE interoperability improvements and sensor fusion TF initiatives. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $1.212 million for design, development, integration, and testing of Silent Knight Radar ASE interoperability improvements and reduced TF signature management initiatives.	6.227	-	1.212	-	1.212
Title: ISR Payload	1.429	1.603	1.258	-	1.258

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: ISR Payload Sensor Technology supports development, integration, and testing of sensor miniaturization efforts to adapt large (Group 4-5) unmanned aircraft system (UAS) ISR capabilities on all SOF UAS ISR platforms. ***FY 2018 Plans:*** Continue spiral development to increase the smaller SOF ISR platforms' capabilities through incremental development, integration, and testing. ***FY 2019 Base Plans:*** Continues spiral development to increase the smaller SOF ISR platforms' capabilities through incremental development, integration, and testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease of $0.345 million is due to higher command priorities.					
Accomplishments/Planned Programs Subtotals	100.429	175.543	118.028	-	118.028

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PROC/5000C13000: *C-130 Modifications*	42.942	31.809	80.274	-	80.274	21.730	21.233	16.164	16.487	Continuing	Continuing
• PROC/2012C130J: *AC/MC-130J*	68.333	179.934	165.813	-	165.813	170.323	180.730	221.927	285.871	Continuing	Continuing
• PROC/1202PSP: *Precision Strike Package*	227.882	229.728	226.965	-	226.965	228.510	232.704	148.680	66.870	Continuing	Continuing
• PROC0201RWUPGR: *Rotary Wing Upgrades and Sustainment*	164.596	158.988	148.351	-	148.351	143.788	149.300	152.009	155.215	Continuing	Continuing

Remarks

D. Acquisition Strategy

• EC-130J Upgrades: Operational Flight Program Block Cycle is being developed by the Air Force program office using existing development and production contracts.

• EC-130J Commando SOLO: Digital broadcast capabilities are being developed through an incremental acquisition strategy to incorporate and test readily available equipment into the EC-130J aircraft.

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
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• EW – RFCM: Awarded competitive EMD contract for development. Down selected to the best overall solution to integrate and test an RFCM System on AC/MC-130J aircraft.

• PSP for SOF: Incremental acquisition strategy to integrate and test the PSP and capability enhancements on donor MC-130J aircraft provided by the U.S. Air Force and other SOF aircraft. Multiple contract awards.

• PSP HEL: AC-130 HEL program utilizes Naval Surface Warfare Center Dahlgren Division as the government Lead System Integrator of HEL components. HEL system components purchased under Defense Ordinance Technology Consortium broad area announcement using incremental Cost Plus Fixed Fee contracts and cost sharing agreements.

• C-130 SOF Common TF/TA (Silent Knight) Radar: Awarded delivery order on Cost Plus Incentive Fee contract to integrate and test the SOF Common TF/TA (Silent Knight) radar on MC-130J aircraft and develop modifications to aircraft displays and controls. Government developmental test and evaluation, FY 2018 - FY 2020; Operational Test and Evaluation, FY 2021; Required Assets Available, Q1FY2022.

• SOF Common TF/TA (Silent Knight) Radar: Competitive EMD contract was awarded to Raytheon in FY 2007 for radar B Kit design, development, and testing. Subsequent MH-47G and MH-60M A Kit design, integration, and test efforts awarded to Lockheed Martin (SOFSA). Cost Plus Fixed Fee (CPFF) awarded to Raytheon in January 2017 for software development of Software Version (SW ver) 7.14 (outcome of 2017 Limited Users Test). Continued software development to enhance interoperability with other on aircraft systems in FY18/19 followed by operational capability additions and move to sensor fusion TF FY20-24.

• ISR Payload Sensor Technology: Effort is being executed via a spiral development, integration and testing acquisition strategy based on leveraging existing sensor technology. The focus will be on reducing the size, weight, power and cost of state of the art ISR sensors fielded on larger ISR platforms, such as Group 4-5 unmanned aircraft systems (UAS), in order to make them usable by smaller SOF ISR platforms, such as Group 2-3 UAS. This development will include the integration of the ISR capability with the platform's C2 and Communications systems as appropriate.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 United States Special Operations Command			Date: February 2018
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Product Development ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EC-130J Upgrades	C/CPIF	Lockheed Martin : Marietta, GA	5.811	5.161	Dec 2016	-		1.252	Dec 2018	-		1.252	0.000	12.224	-
EC-130J Commando Solo Removable Airborne Military Information Support Operations System (RAMS)	C/CPFF	Johns Hopkins University APL : Baltimore, MD	3.396	-		-		1.179	Mar 2019	-		1.179	0.000	4.575	-
Electronic Warfare - Radio Frequency Countermeasures (EW-RFCM)	C/CPIF	BAE Systems, Inc. : Totowa, NJ	55.925	41.918	Jan 2017	41.133	Jan 2018	1.003	Jan 2019	-		1.003	Continuing	Continuing	-
Precision Strike Package (PSP) for SOF - CSO Station	C/FFP	Various : Various	-	3.607	Jan 2017	-		-		-		-	Continuing	Continuing	-
PSP for SOF - Situational Awarness	C/FFP	Various : Various	-	4.825	Jan 2017	-		-		-		-	Continuing	Continuing	-
PSP for SOF - Defensive Systems	C/TBD	Various : Various	-	-		4.845	Jan 2018	2.085	Jan 2019	-		2.085	0.000	6.930	-
PSP for SOF - EO/IR Sensor	C/TBD	Various : Various	-	-		0.705	Jan 2018	1.889	Jan 2019	-		1.889	Continuing	Continuing	-
PSP for SOF - Adverse Weather	C/TBD	Various : Various	-	-		6.057	Jan 2018	10.575	Jan 2019	-		10.575	Continuing	Continuing	-
PSP for SOF - SMP/PSP Integration	C/TBD	Various : Various	-	-		-		1.202	Jan 2019	-		1.202	Continuing	Continuing	-
PSP High Energy Laser (HEL) - High Power Beam Director	C/CPFF	MZA Associates Corporation : Albuquerque, NM	-	-		8.000	Mar 2018	4.000	Feb 2019	-		4.000	0.000	12.000	-
PSP HEL - Prototype Integration, Power, Isolation Structure	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	-		3.000	Mar 2018	7.136	Jan 2019	-		7.136	Continuing	Continuing	-
PSP HEL - High Power Laser	C/CPFF	TBD : TBD	-	-		4.650	Apr 2018	22.850	Feb 2019	-		22.850	0.000	27.500	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 United States Special Operations Command		Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130 SOF Common TF/ TA (Silent Knight) Radar	C/CPIF	Lockheed Martin Aero : Marietta, GA	76.499	24.296	Jan 2017	71.821	Jan 2018	36.894	Jan 2019	-		36.894	Continuing	Continuing	-
Intelligence, Surveillance, and Reconnaissance Payload	TBD	Various : Various	1.288	1.495	Apr 2017	1.603	Apr 2018	1.258	Apr 2019	-		1.258	Continuing	Continuing	-
SOF Common TF/TA (Silent Knight) Radar	C/FFP	Raytheon : Forest, MS	-	3.898	Jan 2017	-		-		-		-	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	313.802	-		-		-		-		-	0.000	313.802	-
		Subtotal	456.721	85.200		141.814		91.323		-		91.323	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130 SOF Common TF/ TA (Silent Knight) Radar	C/CPIF	Various : Various	6.949	3.358	Dec 2016	7.305	Dec 2017	3.811	Dec 2018	-		3.811	Continuing	Continuing	-
EW-RFCM	C/Various	Robins AFB : Warner Robins, GA	14.164	2.155	May 2017	3.820	Jan 2018	2.182	Jan 2019	-		2.182	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	28.802	-		-		-		-		-	0.000	28.802	-
		Subtotal	49.915	5.513		11.125		5.993		-		5.993	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EW-RFCM	C/Various	Robins AFB : Warner Robins, GA	4.165	0.700	Feb 2017	12.295	Jan 2018	6.247	Jan 2019	-		6.247	Continuing	Continuing	-
PSP for SOF	C/Various	Various : Various	18.740	1.487	Dec 2016	1.905	Dec 2017	2.603	Dec 2018	-		2.603	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130 SOF Common TF/ TA (Silent Knight) Radar	C/CPIF	Various : Various	13.431	3.455	Dec 2016	6.441	Dec 2017	9.372	Dec 2018	-		9.372	Continuing	Continuing	-
SOF Common TF/TA (Silent Knight) Radar	C/CPIF	Various : Various	119.565	2.179	Jan 2017	-		1.212	Jan 2019	-		1.212	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	8.903	-		-		-		-		-	0.000	8.903	-
		Subtotal	164.804	7.821		20.641		19.434		-		19.434	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130 SOF Common TF/ TA (Silent Knight) Radar	C/CPIF	Various : Various	7.034	1.745	Dec 2016	1.963	Dec 2017	1.278	Dec 2018	-		1.278	Continuing	Continuing	-
SOF Common TF/TA (Silent Knight) Radar	C/Various	Various : Various	-	0.150	Oct 2016	-		-		-		-	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	31.016	-		-		-		-		-	0.000	31.016	-
		Subtotal	38.050	1.895		1.963		1.278		-		1.278	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	709.490	100.429		175.543		118.028		-		118.028	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

EC-130J Upgrade Schedule

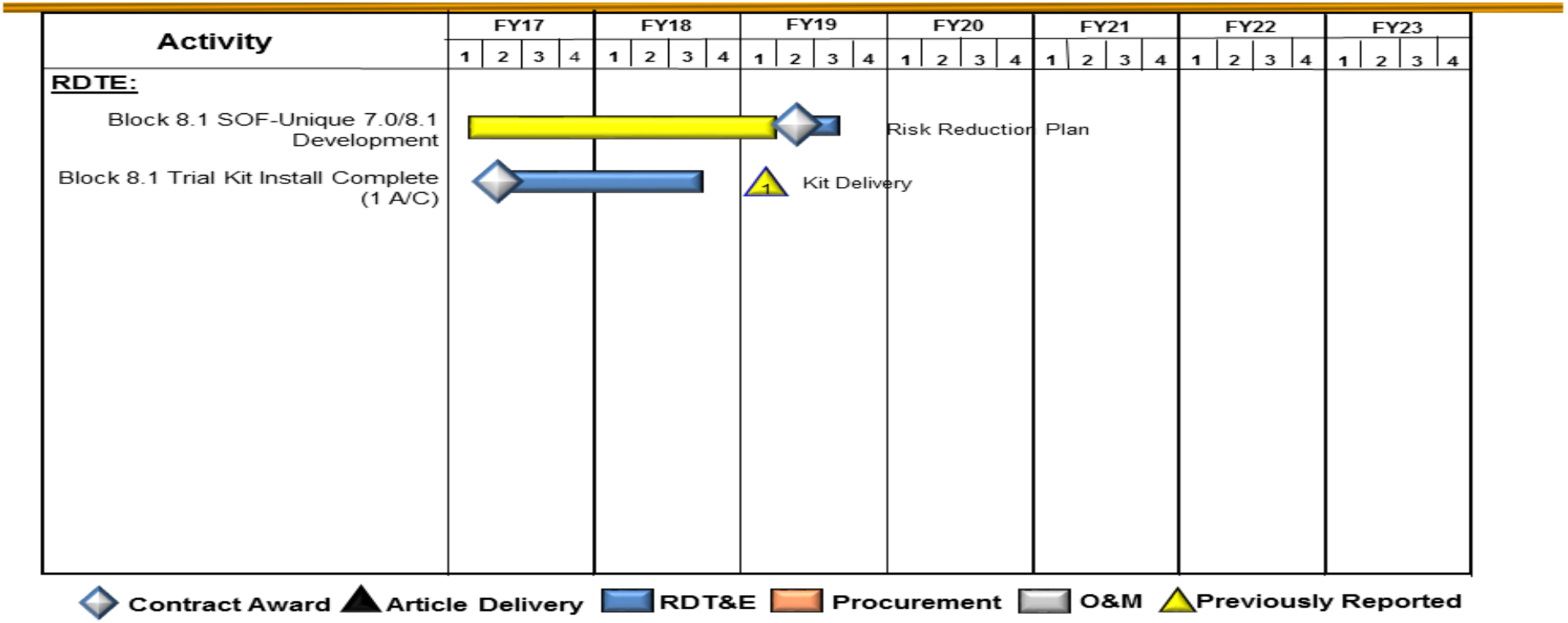

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

EC-130J CSOLO
RAMS and De-Mod Schedule

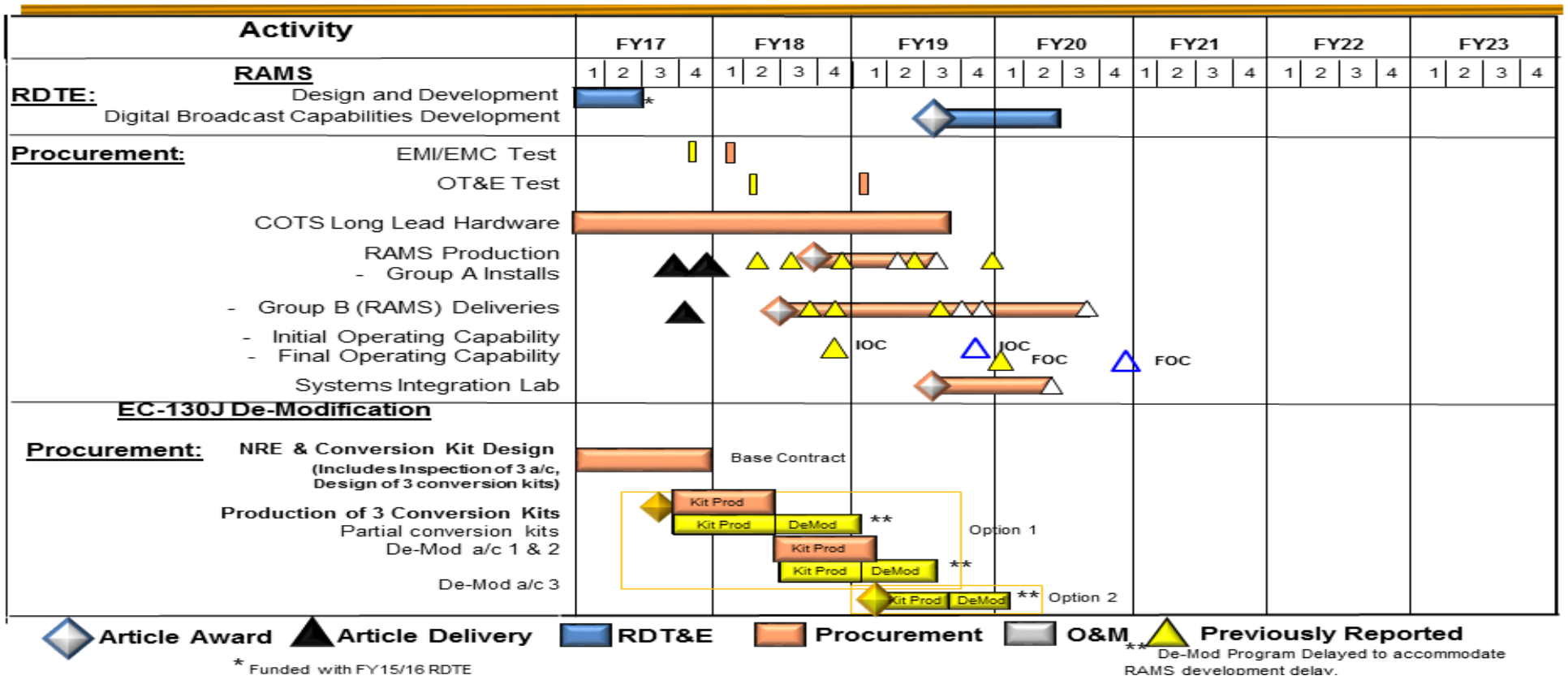

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

AC/MC-130J RFCM Schedule

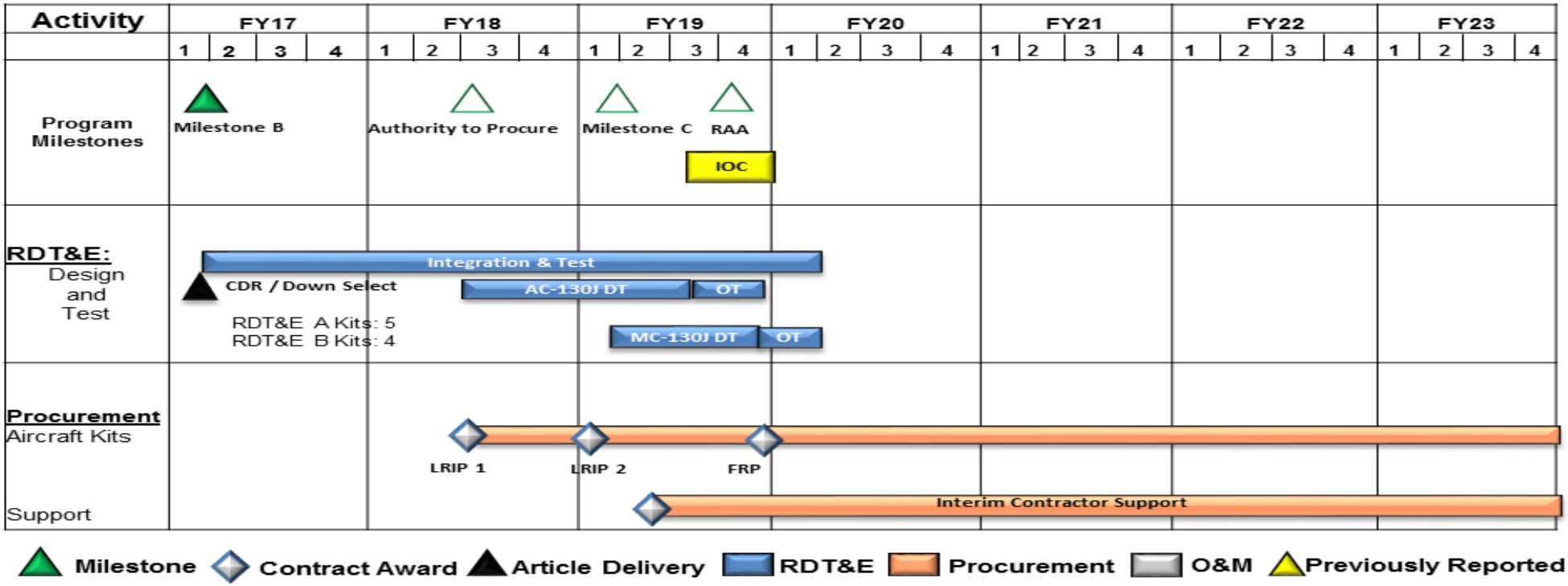

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

AC-130J/PSP Schedule

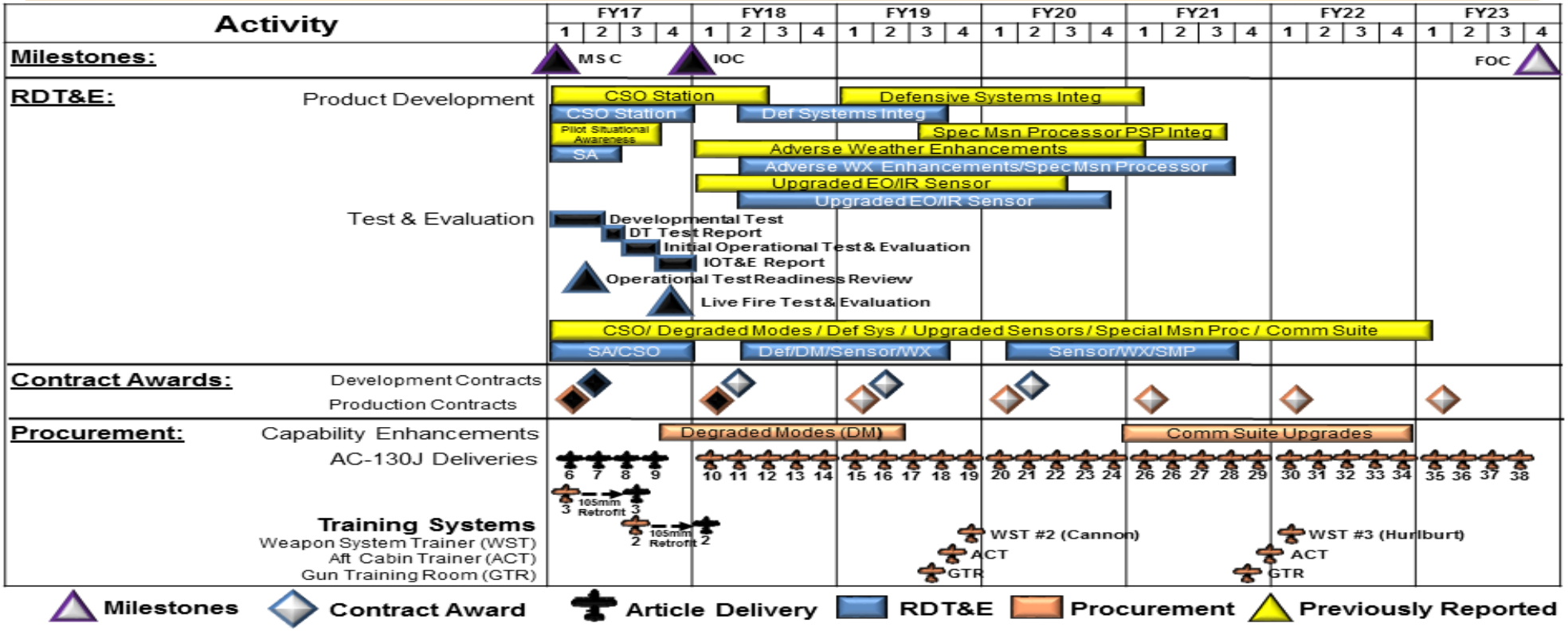

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

AC-130 High Energy Laser Schedule

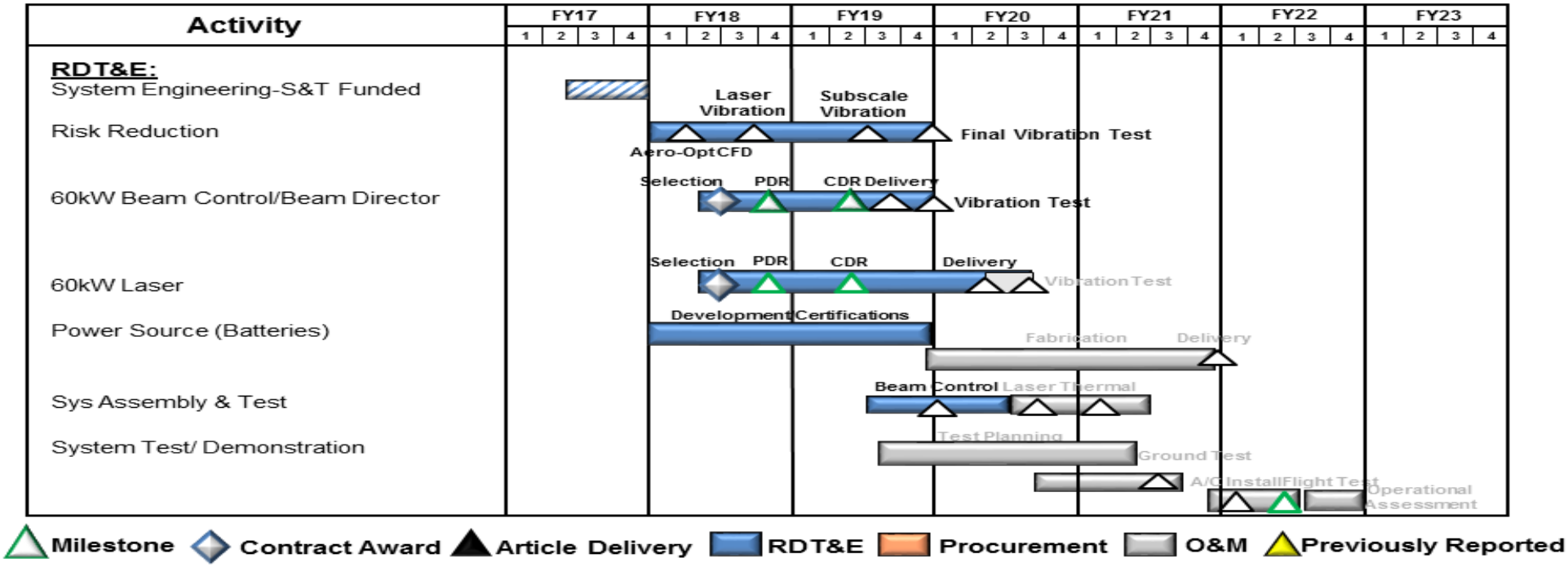

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

C-130 SOF Common TF/TA Radar Schedule

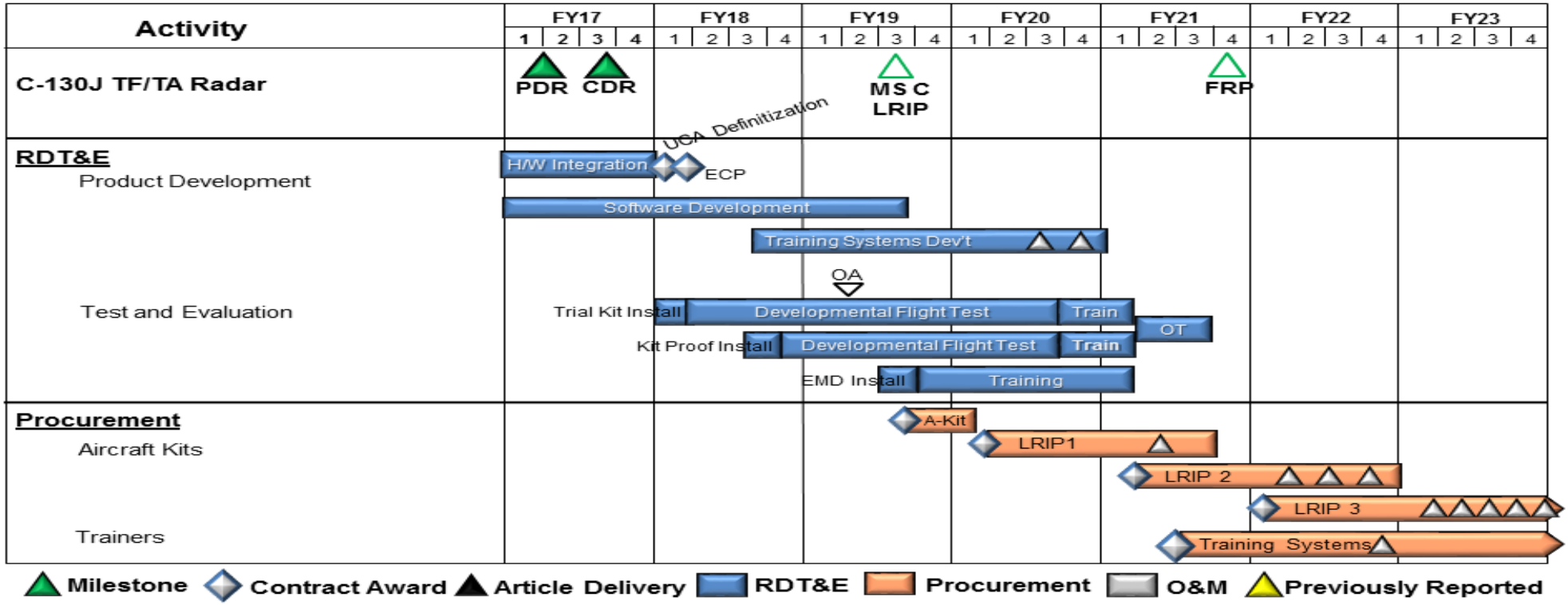

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

SOF Common (Silent Knight) TF/TA Radar Schedule

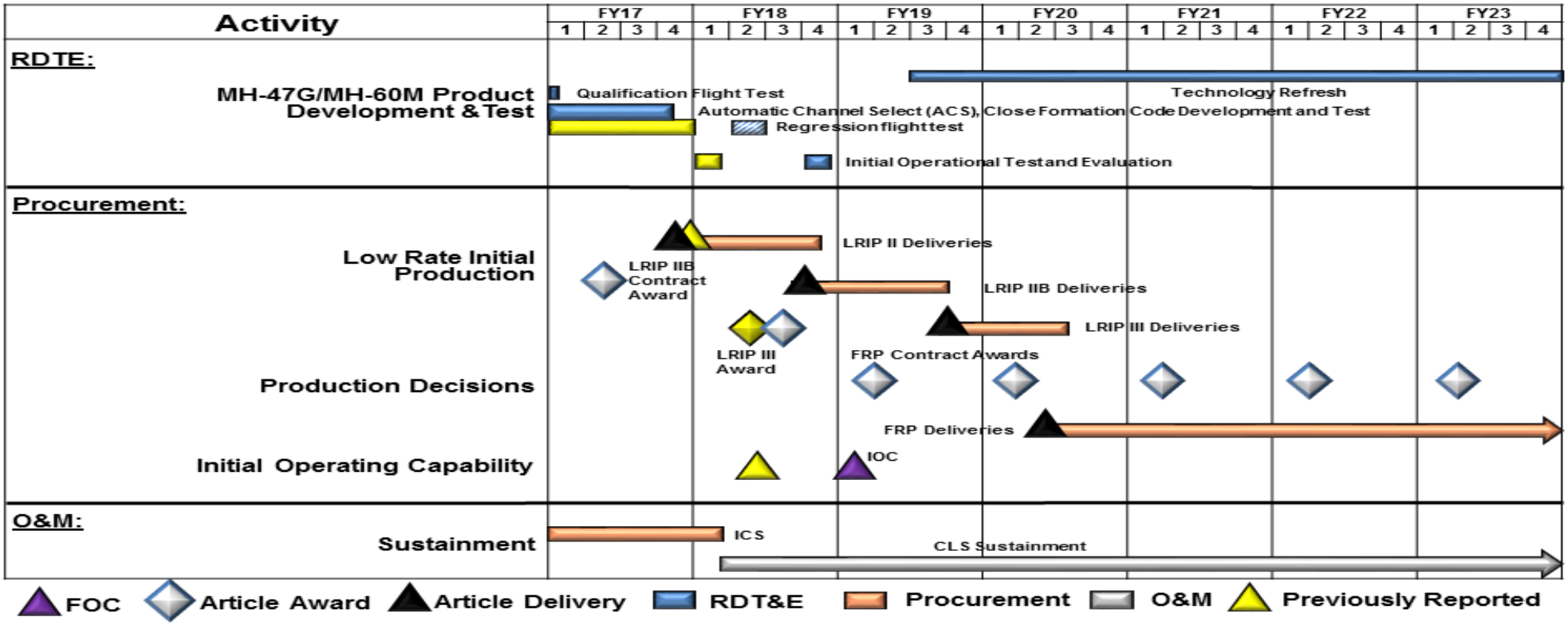

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

ISR Payload Sub-Project Schedule

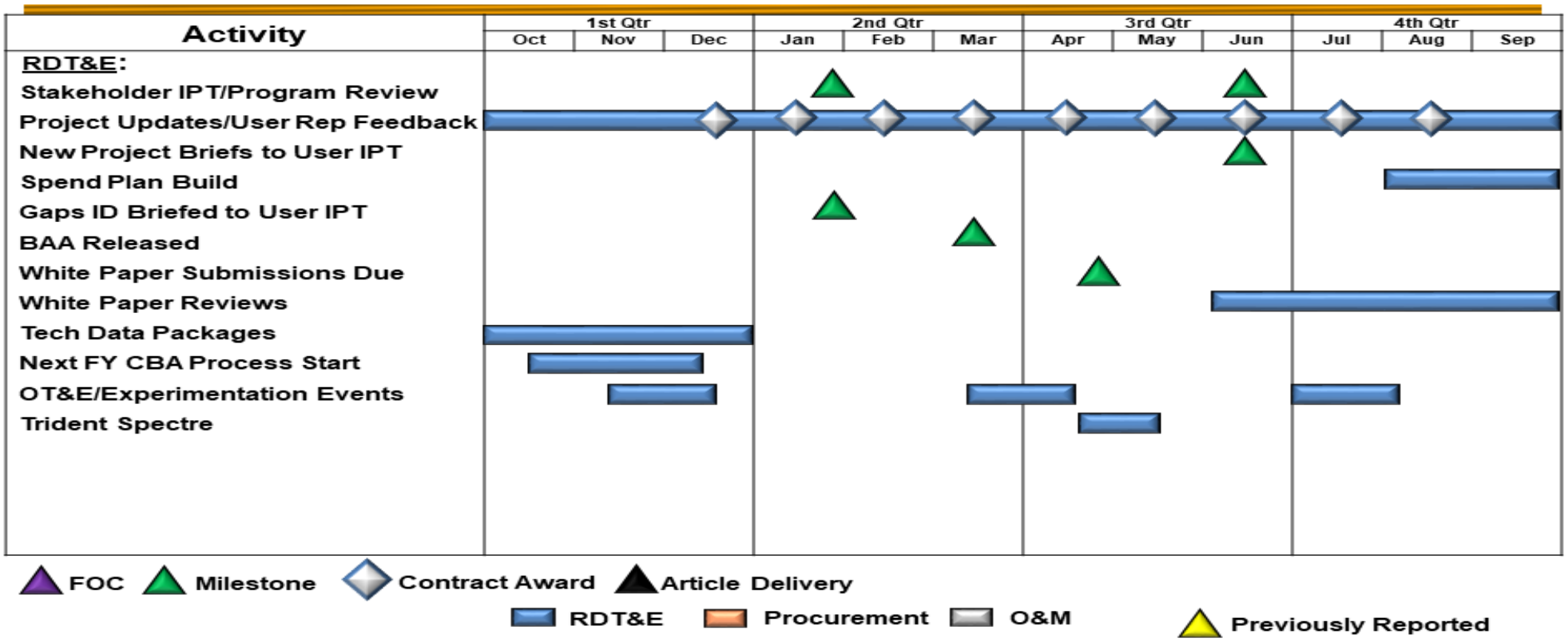

Exhibit R-4A, RDT&E Schedule Details: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
EC-130J Upgrades				
Block 8.1 Development and Trial Kit Install	1	2017	1	2021
EC-130J Commando Solo Removeable Airborne Military Information Support Operations System (RAMS)				
Development and Design	2	2019	2	2020
Electronic Warfare - Radio Frequency Countermeasures (EW-RFCM)				
Integration and Testing	2	2017	2	2020
Precision Strike Package (PSP) for SOF				
Block 20 Developmental Test/Initial Operational Test and Evaluation	1	2017	3	2017
Capability Enhancements Product Development	2	2017	4	2022
Capability Enhancements Test and Evaluation	1	2017	4	2023
PSP High Energy Laser (HEL)				
PSP HEL Risk Reduction Demonstration	2	2017	1	2020
PSP HEL Prototype Demonstration and Operator Evaluation	2	2018	4	2022
C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) (Silent Knight) Radar				
Software Development	2	2017	3	2019
Development/Flight Testing	4	2018	3	2020
Operational Testing	2	2021	3	2021
Training System Development	1	2018	1	2021
SOF Common (TF/TA) (Silent Knight) Radar				
Qualification, Automatic Channel Select, Close Formation Code & Regression Flight Testing	1	2017	4	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Operational Testing	2	2018	2	2018
Aircraft Survivability Equipment interoperability and reduced Terrain Following signature management initiatives	1	2019	4	2023
Intelligence, Surveillance, and Reconnaissance (ISR) Payload				
Payload Development	3	2017	4	2023
Payload Integration (Phase 1)	1	2018	2	2019
Payload Integration (Phase 2)	4	2020	1	2022
Payload Testing (Phase 1)	2	2019	3	2019
Payload Testing (Phase 2)	1	2022	2	2022

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) SF200 / *CV-22*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
SF200: *CV-22*	2.993	0.651	14.259	22.344	-	22.344	28.211	10.139	9.672	18.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 212

A. Mission Description and Budget Item Justification

The CV-22 is a SOF variant of the V-22 vertical medium lift, multi-mission aircraft. The CV-22 project provides long range, high speed, infiltration, exfiltration, and resupply to Special Forces teams in hostile, denied, and politically sensitive areas. This is a capability not currently provided by other existing aircraft. The funding in this program supports integration, design, development, and test to provide improved capabilities to include, but not limited to, more robust performance in situational awareness, ISR, weapons, avionics, survivability, maneuverability, mission deployment and improved reliability and maintainability of the CV-22 platform.

Block 20: Design, integrate, test, and validate enhancements required to meet SOF-unique mission requirements and correct deficiencies identified in previous testing. This incremental development will provide improved capabilities to include, but not limited to, robust performance in situational awareness, weapons, avionics, survivability, maneuverability, mission deployment, improved reliability and maintainability of the CV platform.

CV-22 SF Common TF/TA (Silent Knight) Radar: Provides long-range, night/adverse weather, clandestine penetration of medium-to-high threat areas to infiltration, exfiltration, and resupply SOF forces. Provides more sustainable/capable radar to replace obsolescing and APQ-186 terrain following/avoidance radar.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: CV-22 SOF Common TF/TA (Silent Knight) Radar	0.651	14.259	22.344	-	22.344
Description: Provides long-range, night/adverse weather, clandestine penetration of medium-to-high threat areas to infil, exfil, and resupply SOF forces. Provides more sustainable/capable radar to replace obsolescing and tech limited APQ-186 terrain following/avoidance radar. ***FY 2018 Plans:*** Continue integration/testing of the CV-22 SF Common TF/TA (Silent Knight) Radar. ***FY 2019 Base Plans:*** Continues integration/testing of CV-22 SF Common TF/TA (Silent Knight) Radar. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $8.085 million is to support developmental flight testing.					
Accomplishments/Planned Programs Subtotals	0.651	14.259	22.344	-	22.344

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF200 / *CV-22*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PROC/1000CV22: *CV-22 SOF Modification*	47.786	42.178	32.529	-	32.529	27.491	31.285	56.535	50.918	Continuing	Continuing
• PROC/V022A0: *Aircraft Procurement CV-22 (MYP)*	97.000	-	-	-	-	-	-	-	-	0.000	4,415.234
• RDT&E1/0401318F: *RDT&E, USAF*	27.704	22.519	16.641	-	16.641	14.731	14.985	15.293	15.600	64.350	225.577
• RDT&E/0604262N: *V-22 RDT&E, N BA-05*	149.113	171.386	135.522	-	135.522	134.939	93.363	117.119	119.461	184.398	1,105.301

Remarks

D. Acquisition Strategy

The Silent Knight Radar (SKR) was developed by USSOCOM to replace the existing, obsolescing APQ-186 TF/TA multimode radar on the CV-22. The acquisition strategy for the CV-22 SF Common TF/TA (Silent Knight) Radar program is to procure radar units and radar software modifications through the USSOCOM SKR Program Management Office. Contracts will be awarded to integrate SKR into the V-22 platform and buy aircraft modification kits, using a mixture of both sole source and competitive contracts.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 United States Special Operations Command			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) SF200 / *CV-22*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CV-22 SF Common TF/ TA (Silent Knight) Radar - Operational Flight Program (OFP) Development	TBD	Various : Various	-	-		6.384	Jan 2018	7.910	Nov 2018	-		7.910	Continuing	Continuing	-
CV-22 SF Common TF/ TA (Silent Knight) Radar - Integration	TBD	Various : Various	-	-		6.774	Feb 2018	12.099	Feb 2019	-		12.099	Continuing	Continuing	-
Block 20	Various	Various : Various	1.057	-		-		-		-		-	0.000	1.057	-
		Subtotal	1.057	-		13.158		20.009		-		20.009	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CV-22 SF Common TF/ TA (Silent Knight) Radar - OFP	TBD	Various : Various	-	0.651	Nov 2017	0.590	Jan 2018	1.110	Nov 2018	-		1.110	Continuing	Continuing	-
CV-22 SF Common TF/ TA (Silent Knight) Radar - Integration	TBD	Various : Various	-	-		0.511	Feb 2018	1.225	Feb 2019	-		1.225	Continuing	Continuing	-
Block 20	Various	Various : Various	1.936	-		-		-		-		-	0.000	1.936	-
		Subtotal	1.936	0.651		1.101		2.335		-		2.335	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.993	0.651		14.259		22.344		-		22.344	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF200 / *CV-22*

CV-22 Schedule

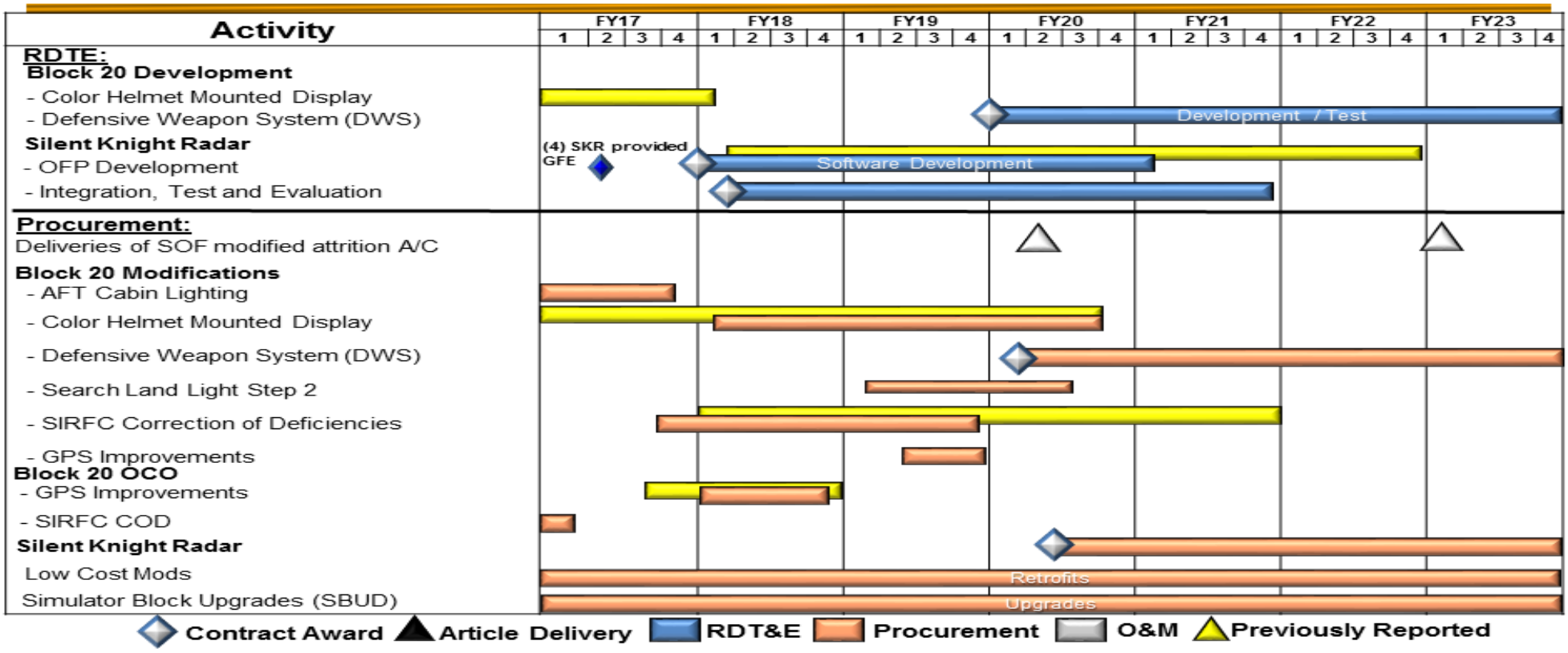

Exhibit R-4A, RDT&E Schedule Details: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF200 / *CV-22*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CV-22				
Block 20 Development/Test	1	2017	1	2018
Defensive Weapon System (DWS)	1	2020	4	2023
SF Common TF/TA (Silent Knight) Radar - OFP Development	2	2018	4	2021
SF Common TF/TA (Silent Knight) - Radar Integration	2	2018	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command			Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S750 / *Mission Training and Preparation Systems*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
S750: *Mission Training and Preparation Systems*	19.647	6.745	8.181	7.520	-	7.520	8.635	9.673	9.596	9.788	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds the definition, design, development, prototyping, integration, and testing of Mission Training and Preparation Systems (MTPS) to support training, avoid obsolescence, and maintain simulator concurrency with weapon system configurations; support mission planning and rehearsal systems enhancements required to meet Special Operations Force (SOF)-unique mission requirements and correct deficiencies identified in previous testing; and support mission planning and rehearsal capabilities in current MTPS. The MTPS project also includes program management, systems engineering, configuration management, architecture development, risk reduction, and trade study initiatives, as well as initiatives to assure interoperability and commonality between diverse SOF training systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SOMPE	6.745	8.181	7.520	-	7.520
Description: Special Operations Mission Planning and Execution (SOMPE) develops, integrates, tests, and validates software enhancements required to meet SOF-unique requirements for, and correct deficiencies to, mission planning, preview, and execution software tools to support all phases of SOF operations from deliberate to time-critical. The SOMPE project automates time-sensitive planning activities and provides enhanced situational awareness during mission execution. SOMPE provides the interoperable environment for SOF adaptive planning to integrate global operations including, but not limited to, precision strike software, digital navigation, and unmanned aerial systems command and control. This project also provides the integration of SOMPE with multi-dimensional visualization systems, providing immersive mission rehearsal in minimal timeframes from the SOMPE mission plan. SOMPE is embedded in the USSOCOM Headquarters, Theater Special Operations Commands, Joint Special Operations Task Forces, Joint Special Operations Aviation Components, SOF warfighters, and SOF warfighter platforms.					
FY 2018 Plans: Continue development of software applications to address SOF-unique aviation, ground and maritime mission planning requirements, data transfer software from mission planning systems to SOF helicopters, airplanes, and simulator/rehearsal systems, and automated performance models and performance prediction software.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S750 / *Mission Training and Preparation Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue updating of mission planning, data transfer and performance software. Continue development of software applications for smaller mobile computer devices (tablets, smart phones, etc). ***FY 2019 Base Plans:*** Continues development of software applications to address SOF-unique aviation, ground and maritime mission planning requirements, data transfer software from mission planning systems to SOF helicopters, airplanes, and simulator/rehearsal systems, and automated performance models and performance prediction software. Continues updating of mission planning, data transfer and performance software. Continues development of software applications for smaller mobile computer devices (tablets, smart phones, etc). ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $0.592 million is for minor adjustments.					
Accomplishments/Planned Programs Subtotals	6.745	8.181	7.520	-	7.520

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

SOMPE comprises multiple mission planning software development contracts awarded to developers for each project effort. Acquisition strategies depend on the type of development effort. For minor software development projects, contracts may be awarded as sole source acquisitions from existing contract vehicles. For major software development projects, contracts may be awarded as limited or full and open competition acquisitions. Individual acquisition strategies are developed as the scope of software development projects are identified and defined.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 United States Special Operations Command			Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S750 / *Mission Training and Preparation Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Special Operations Mission Planning and Execution (SOMPE) Software Development and Integration	MIPR	Various : Various	15.372	5.260	Jan 2017	6.682	Jan 2018	6.073	Jan 2019	-		6.073	Continuing	Continuing	-
		Subtotal	15.372	5.260		6.682		6.073		-		6.073	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOMPE Software	MIPR	Special Operations Mission Planning Office : Fort Eustis, VA	1.570	0.371	Feb 2017	0.385	Feb 2018	0.371	Feb 2019	-		0.371	Continuing	Continuing	-
		Subtotal	1.570	0.371		0.385		0.371		-		0.371	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOMPE Software	C/CPFF	Wyle-CAS : Huntsville, AL	2.705	1.114	Jan 2017	1.114	Jan 2018	1.076	Jan 2019	-		1.076	Continuing	Continuing	-
		Subtotal	2.705	1.114		1.114		1.076		-		1.076	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	19.647	6.745		8.181		7.520		-		7.520	Continuing	Continuing	N/A

Remarks

*** PLEASE ADD COSTS OR ENTER REMARKS ***

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S750 / *Mission Training and Preparation Systems*

SOMPE SCHEDULE

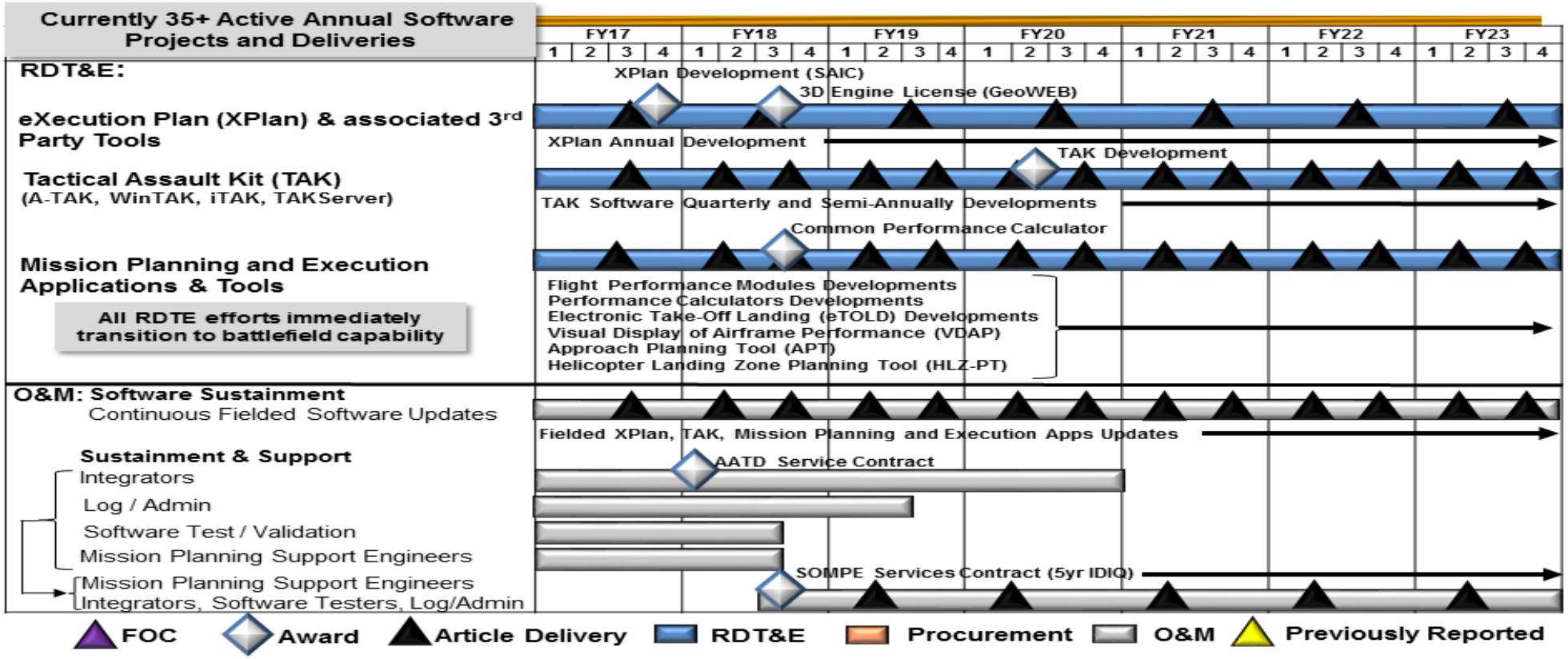

Exhibit R-4A, RDT&E Schedule Details: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S750 / *Mission Training and Preparation Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Special Operations Mission Planning and Execution (SOMPE)				
Product Development	2	2017	4	2023
Support (Software)	2	2017	4	2023
Test and Evaluation (Software)	2	2017	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) S875 / *AC/MC-130J*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
S875: *AC/MC-130J*	29.906	8.020	9.351	17.091	-	17.091	23.900	52.613	54.103	55.122	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AC/MC-130J project funds core SOF-unique modifications to replace aging/retired AC-130H Spectre, AC-130W Stinger II, AC-130U Spooky, MC-130E Combat Talon I, MC-130P Combat Shadow, MC-130H Combat Talon II aircraft. The 8 AC-130H Spectre, 12 AC-130W Stinger II and 17 AC-130U Spooky airframes will be replaced with MC-130J aircraft modified with the PSP to achieve the AC-130J configuration. The AC-130J aircraft will provide close air support, air interdiction, and armed reconnaissance capability. The 14 MC-130E Talon I, 23 MC-130P Combat Shadow, and 20 MC-130H Talon II airframes will be replaced by MC-130J Commando II aircraft with SOF mission modifications. The MC-130J Commando II aircraft perform clandestine or low visibility, single or multi-ship low-level missions intruding politically-sensitive or hostile territories; provide air refueling for special operations helicopters and CV-22 aircraft; and airdrop of leaflets, insert small special operations teams, resupply bundles and combat rubber raiding craft. The Air Force procures and fields the basic aircraft, common support equipment, and trainers for USSOCOM. An incremental upgrade approach will be used to integrate SOF capabilities onto the aircraft and training systems. SOF capabilities include, but are not limited to, Airborne Mission Networking, data fusion, threat detection and avoidance, integrated terrain following/terrain avoidance, electronic warfare, and embedded training. Integrating and automating SOF mission systems that deliver these capabilities is critical to fielding SOF-capable AC/MC-130J aircraft to recapitalize Air Force Special Operations Command's legacy C-130 fleet.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: MC-130J Airborne Mission Networking (AbMN)	7.627	8.936	4.324	-	4.324
Description: AbMN provides aircrew and mission personnel aboard MC-130J aircraft with an integrated networked solution to rapidly and effectively send and receive mission-critical data to/from tactical and operational nodes in the battlespace. Capabilities include, but are not limited to, secure Line-of-Sight/Beyond Line-of-Sight voice/data communications, friendly force identification, mission tracking, threat identification, full-motion video, collaboration, chat, e-mail, and data links. AbMN improves SOF ability to streamline command and control, improve situational awareness, and reduce operational risk through real time exchange of digital information among aircraft, SOF components, and other tactical and operational nodes.					
FY 2018 Plans: Completes system design and conduct test in System Integration Lab (SIL) for ground and flight testing.					
FY 2019 Base Plans: Completes trial installation and begins ground and flight testing.					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Decrease of $4.612 million is due to completion of system design and SIL testing in FY 2018.					
Title: AC-130J ***Description:*** Develops, integrates, and tests aircraft enhancements to meet SOF-unique mission requirements. Enhancements include providing PSP aircraft infrastructure development. ***FY 2018 Plans:*** Continue development and tests aircraft modification designs for PSP kit installation. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease of $0.415 million is due to completion of development phase.	0.393	0.415	-	-	-
Title: Integrated Tactical Mission Systems (ITMS) ***Description:*** ITMS resolves aircrew workload by merging SOF mission systems data with green aircraft flight information and automating displays and controls. Capabilities include, but are not limited to, automated route replanning, tactical flight management, integrated aircraft defensive systems, and defensive countermeasures embedded training. ITMS provides reduced aircrews with real-time information and decision-making data for safe terrain following/terrain avoidance flight (MC-130J aircraft) and seamless employment of the Precision Strike Package (AC-130J aircraft). ***FY 2019 Base Plans:*** Begins integration, interoperability risk reduction and test of SOF tactical mission systems, including but not limited to terrain following/terrain avoidance capabilities, situational awareness capabilities, electronic warfare capabilities, and special mission systems (SMS). Begins development of SMS capabilities required to automate tactical mission systems (including, but not limited to, data fusion, threat correlation, machine learning). ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $12.698 million supports development of an integrated special mission system (SMS) capable of automating SOF tactical mission systems.	-	-	12.767	-	12.767
Accomplishments/Planned Programs Subtotals	8.020	9.351	17.091	-	17.091

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PROC/2012C130J: *AC/MC-130J*	68.333	179.934	165.813	-	165.813	170.323	180.730	221.927	285.871	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command			Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PROC/1202PSP: *Precision Strike Package*	227.882	229.728	226.965	-	226.965	228.510	232.704	148.680	66.870	Continuing	Continuing

Remarks

D. Acquisition Strategy

MC-130J AbMN: Award sole source Cost-Plus-Fixed-Fee contract to develop a battlespace information exchange system for the MC-130J consisting of Government/ Commercial-off-the-shelf communications and computing hardware and Government/developmental software. This approach leverages portions of the AC-130J gunship infrastructure design applicable to the MC-130J. After completing developmental and operational flight testing, award a sole source contract for Low Rate Initial Production followed by a competitive Firm-Fixed Price contract for production, aircraft integration, and fielding.

The basic AC-130J aircraft will be acquired under the U.S. Air Force HC/MC-130J Recapitalization procurement program. USSOCOM will fund development, integration, and testing of capability enhancements for SOF-unique mission equipment using an incremental acquisition strategy. Multiple contract awards.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 United States Special Operations Command			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) S875 / *AC/MC-130J*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MC-130J Airborne Mission Networking (AbMN)	C/CPFF	Sierra Nevada Corporation : Centenial, CO	-	7.486	Jul 2017	7.954	Dec 2017	1.824	Dec 2018	-		1.824	Continuing	Continuing	-
Integrated Tactical Mission System (ITMS) - Tactical Flight Managment System Development	C/Various	TBD : TBD	-	-		-		6.667	Jan 2019	-		6.667	Continuing	Continuing	-
Prior Year	C/Various	Various : Various	29.906	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	29.906	7.486		7.954		8.491		-		8.491	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ITMS - Support	C/Various	Various : Various	-	-		-		1.200	Dec 2018	-		1.200	Continuing	Continuing	-
		Subtotal	-	-		-		1.200		-		1.200	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AC-130J	C/Various	Lockheed Martin : Atlanta, GA	-	0.393	Jan 2017	0.415	Jan 2018	-		-		-	0.000	0.808	-
ITMS - Integration and Test	Allot	USSOCOM Detachment 1 : Eglin AFB, FL	-	-		-		4.900	Jan 2019	-		4.900	Continuing	Continuing	-
MC-130J AbMN Integration and Test	MIPR	USSOCOM Detachment 1 Joint Test Interoperability Command : Eglin AFB, FL	-	0.141	Apr 2017	0.982	Dec 2017	2.500	Dec 2018	-		2.500	Continuing	Continuing	-
		Subtotal	-	0.534		1.397		7.400		-		7.400	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 United States Special Operations Command			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) S875 / *AC/MC-130J*	

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.906	8.020		9.351		17.091		-		17.091	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

MC-130J AbMN Schedule

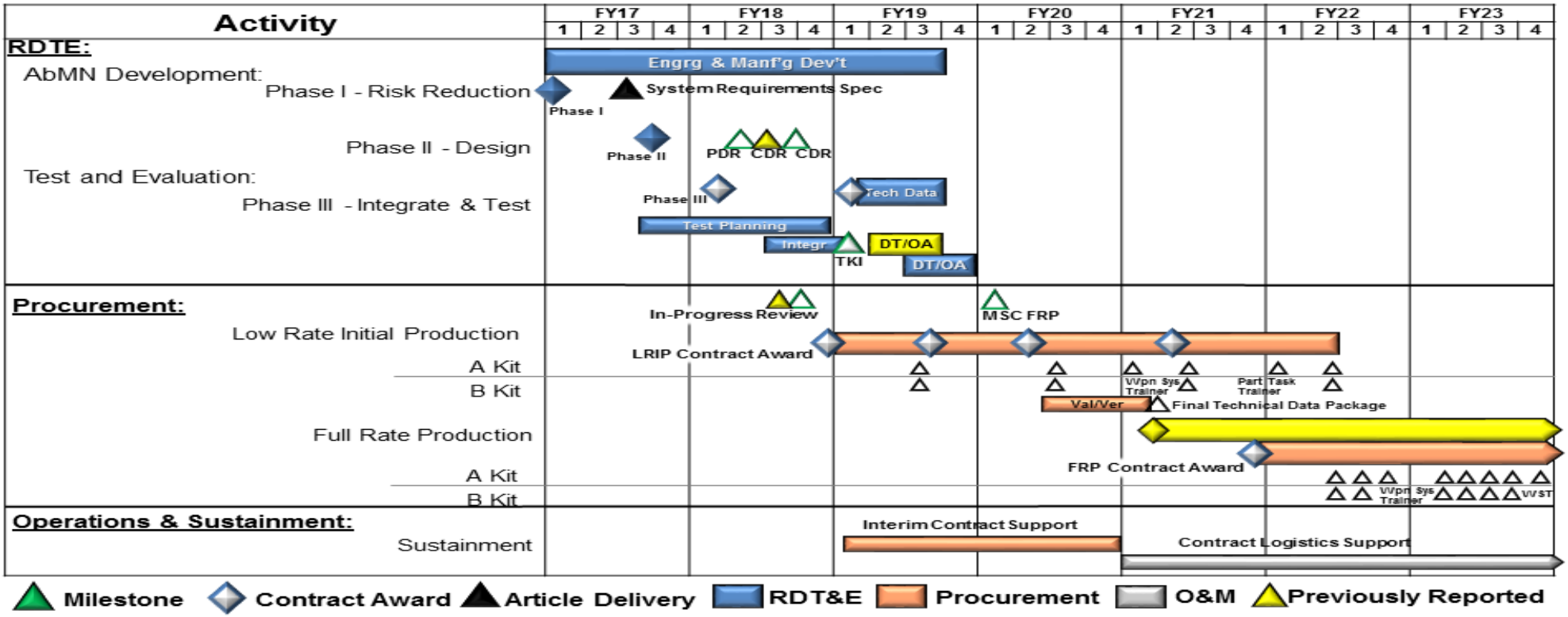

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

AC-130J/PSP Schedule

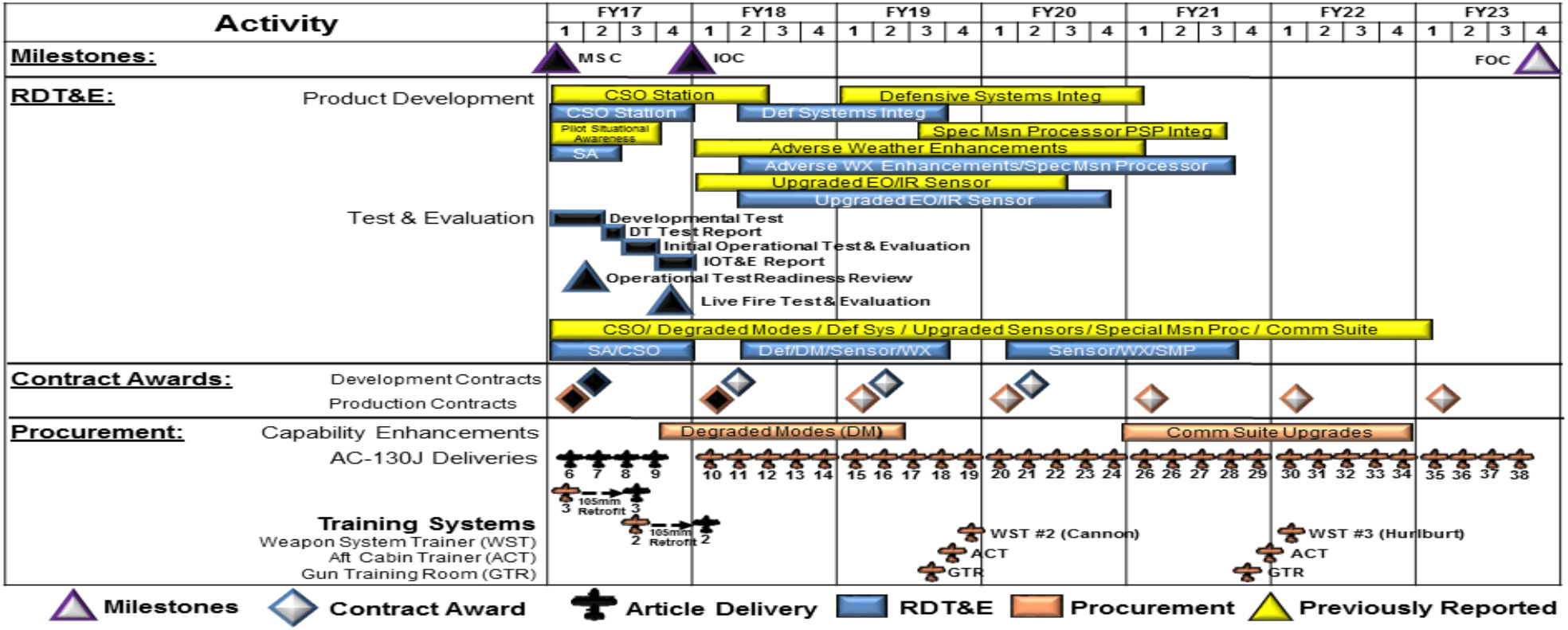

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

AC/MC-130J Mission Systems and MC-130J Modifications Schedule

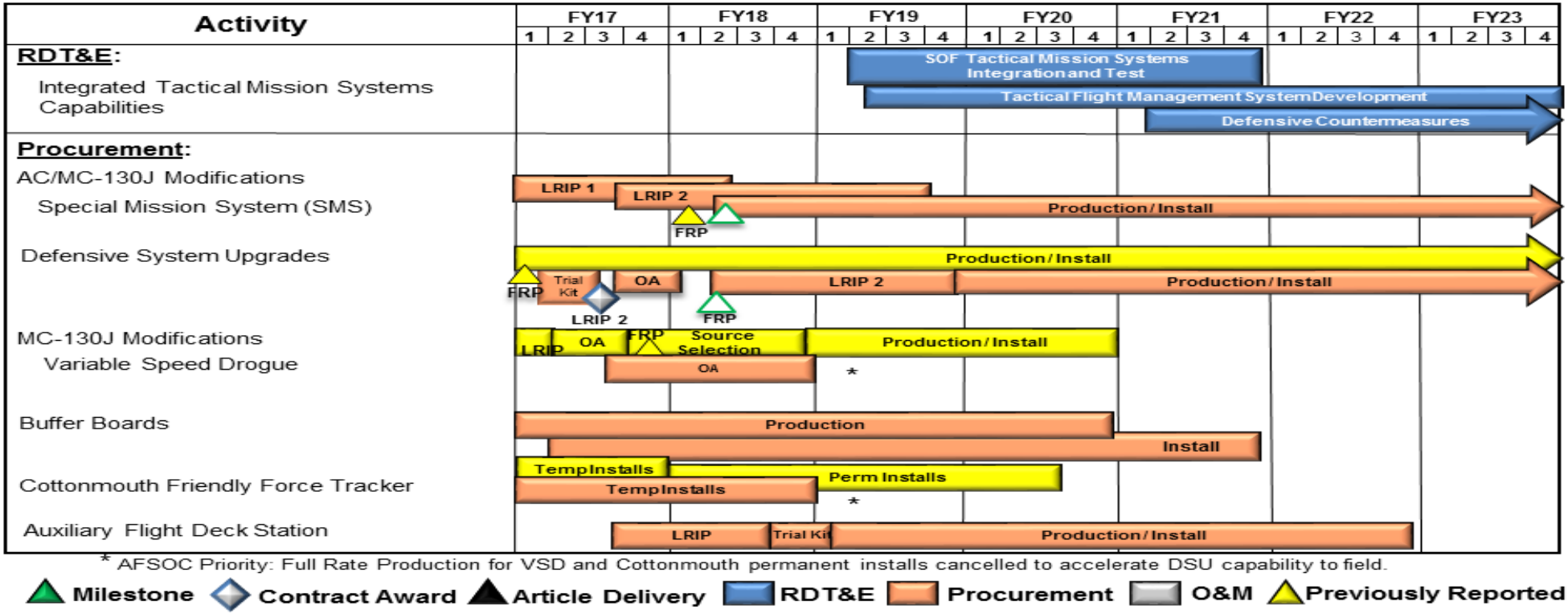

Exhibit R-4A, RDT&E Schedule Details: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MC-130J Airborne Mission Networking (AbMN)				
Development and Test	4	2017	3	2019
Trial Kit Installation	1	2019	2	2019
Integrated Tactical Mission Systems (ITMS)				
Tactical Flight Management System Development	2	2019	4	2023
Integration and Test	2	2019	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) D615 / *Rotary Wing Aviation*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
D615: *Rotary Wing Aviation*	141.399	40.209	52.552	20.010	-	20.010	25.352	17.695	12.574	12.802	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops/upgrades Special Operation Forces (SOF) rotary wing aircraft systems that operate in increasingly hostile environments. This project includes modifications to Aircraft Survivability Equipment (ASE) and weapons systems to counter rapidly merging threats, improve lethality and enhance aircraft self-protection. Rotary wing aircraft supported by this project include: A/MH-6M, MH-60M, and MH-47G. These aircraft provide aviation support to SOF in world-wide contingency operations and low-intensity conflicts and they must be capable of rapid deployment, undetected penetration of hostile areas, and operating at extended ranges under adverse weather conditions to infiltrate, provide logistics for, reinforce, and extract SOF. The threat is characterized by an extensive and sophisticated ground based air defense system and an upgraded air-to-air capability targeted against helicopters.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: A/MH-6M Block 3.0 Upgrade	13.420	13.384	3.120	-	3.120
Description: Upgrade is necessary to restore structural, performance, and safety margins for the aircrews. An airframe structural modification and/or airframe replacement will address recurring structural failures due to high intensity, high gross weight operations, and a decade of battle damage. A main/tail rotor drive train and engine control improvement efforts will reduce airframe loads and restore sufficient safety and performance margins. An avionics upgrade will replace obsolescent components to the extent possible and provide improved battlefield situational awareness to the aircrews and customers necessary to support time sensitive mission requirements. This upgrade is critical in keeping the A/MH-6M aircraft operational beyond FY 2020 and until a suitable replacement aircraft is available. The non-recurring effort supports development, fabrication of test hardware, qualification of components and systems, and data items to support issuance of Government airworthiness releases for structural and software modifications.					
FY 2018 Plans: Continue software qualification, Airworthiness and Flight Characteristics (A&FC) testing efforts.					
FY 2019 Base Plans: Completes software qualification and A&FC testing efforts.					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Decrease of $10.264 million is due to completion of software and airframe qualification efforts and the government A&FC.					
Title: MH-60M Modifications and Upgrades ***Description:*** Develops technologies to improve safety of the MH-60 and decrease operational costs. Efforts include, but are not limited to, DoD MH-60 engineering changes, product improvements to SOF-unique equipment and munitions during testing. This sub-project also includes modifications to ASE and weapons systems to counter rapidly emerging threats, improve lethality and enhance aircraft self-protection. The MH-60M Block Upgrades provide the development, integration, and qualification efforts on the MH-60 helicopter to include flight test support, engineering analysis, documentation, and airworthiness substantiation. ***FY 2018 Plans:*** Continue integration and testing of technologies to improve safety and decrease operational costs to include aircraft survivability equipment, weapons systems improvement and munitions during testing. Start NRE efforts in support of Upturned Exhaust System (UES) II qualification. ***FY 2019 Base Plans:*** Continues integration and testing of UES II and other technologies to improve safety and decrease operational costs to include aircraft survivability equipment, weapons systems improvement and munitions during testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease of $1.297 million was adjusted to account for the availability of prior year execution balances.	0.952	3.479	2.182	-	2.182
Title: Degraded Visual Environment (DVE) ***Description:*** Solution will fuse information from aircraft sensors to display real-time reference points, obstacles, and landing zone information to the aircrew. The DVE solution will provide MH-47/60 aircrews with visual cues for obstacle avoidance and aircraft control during all phases of flight and significantly increase crew and passenger survivability in DVE. This program addresses SOF-unique requirements for rapid fielding and weight limitations, and capitalizes integration of SOF-unique avionics with the unique skills of the SOF aviator. ***FY 2019 Base Plans:*** Completes aircraft integration and testing of the DVE two sensor solution on SOF MH-47 and MH-60. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	9.117	-	1.672	-	1.672

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Increase of $1.672 million completes the aircraft integration and testing associated with the design change from a three sensor solution to a two sensor solution.					
Title: Future Vertical Lift (FVL) ***Description:*** Provides for the long-term replacement of an aging fleet of aircraft and provides a significant increase in range, speed, payload, survivability, reliability, and maintainability of vertical lift aircraft to meet emerging mission requirements. USSOCOM will participate in the service-common development of a joint future vertical lift aircraft by injecting USSOCOM requirements and equities into the initial development and design efforts to minimize SOF-unique modifications to the common aircraft. ***FY 2018 Plans:*** Continue to participate in providing guidance and infrastructure necessary for FVL to implement a mission systems architecture that enables the integration of SOF capabilities into the aircraft. ***FY 2019 Base Plans:*** Continues to participate in providing guidance and infrastructure necessary for FVL to implement a mission systems architecture that enables the integration of SOF capabilities into the aircraft. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease of $0.323 million is due to adjustments for Departmental economic assumption ($0.093 million) and a decrease to account for prior year execution balances ($0.230 million).	0.514	1.123	0.800	-	0.800
Title: Infrared Countermeasures (IRCM) ***Description:*** Provides a low Size, Weight, and Power (SWaP) IRCM capability suitable for the A/MH-6 Mission Enhanced Little Bird with potential use on the MH-60 and MH-47 aircraft. The IRCM program will leverage the Department of Navy developed Distributed Aperture Infrared Countermeasure System by integrating and testing a complete lightweight IRCM systems to include a missile warning system and countermeasure capability. The IRCM program includes development of an infrared exhaust suppressor for the A/MH-6. The A/MH-6 is the only tactical aircraft in the SOF inventory without protection from infrared guided and other advanced Man Portable Air Defense missiles. ***FY 2018 Plans:*** Continue qualification testing of missile warning and lightweight IRCM systems for the A/MH-6 aircraft. ***FY 2019 Base Plans:***	3.442	2.277	2.461	-	2.461

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continues qualification testing of missile warning and lightweight IRCM systems for the A/MH-6 aircraft. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $0.184 million partially funds aircraft testing, addressing SOF-unique hardware and software improvements.					
Title: MH-47 Modifications and Upgrades ***Description:*** Develops technologies to improve performance and safety of the MH-47G and decrease operational costs. Efforts include, but are not limited to, the Active Parallel Actuator System (APAS) and Engine Barrier Filter. This sub-project also includes modifications to ASE and weapons systems to counter rapidly emerging threats and enhance aircraft self-protection. ***FY 2018 Plans:*** Continue APAS development, including integration with MH-47G subsystems. ***FY 2019 Base Plans:*** Continues APAS development, including integration with MH-47G subsystems. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease of $5.416 million is due to lower level of APAS development, including integration with MH-47G subsystems ($1.882 million), a decrease of $0.093 million due to a Departmental economic assumption adjustment and a decrease of $3.441 million is to account for the availability of prior year execution balances.	11.191	10.721	5.305	-	5.305
Title: Mission Processor Upgrades (MPU) ***Description:*** Provides for non-recurring engineering (NRE), systems engineering/testing, and future aircraft architecture studies that support the replacement and upgrade of the current mission and video processors for all Army Special Operations Aviation (ARSOA) rotary wing aircraft. Upgrading all internal processors increases the processing power to support critical functionality and emerging technologies that will be integrated into the Common Avionics Architecture System. This MPU provides the processing and memory resources required to incorporate the following functions into the General Purpose Processing Unit: (1) Global Air Traffic Management replaces ground-based navigation aids with a capability that meets the international requirement that all aircraft be compliant with digital and space-based navigation systems; (2) Cognitive Decision Aiding System fuses information on threat, route, weather, terrain, and friendly forces instantaneously adjusting an aircraft's route to protect the flight crew in hazardous weather, low levels, and night conditions. ***FY 2018 Plans:***	-	5.087	0.362	-	0.362

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Begin exploration of the next generation ARSOA cockpit, to include mission video processor development and testing. ***FY 2019 Base Plans:*** Continues exploration of the next generation ARSOA cockpit, to include mission video processor development and testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease of $4.494 is due to lower level of exploration of the next generation ARSOA cockpit.					
Title: Aircraft Survivability Equipment (ASE) Upgrades ***Description:*** Develops, integrates, and tests critical active and passive SOF-unique aircraft survivability equipment to counter the acknowledged high proliferation of advanced Surface-to-Air threat systems for the A/MH-6, MH-60, and MH-47. Additionally, these threat systems are technically evolving at an unprecedented rate, requiring rapid counter measure system development and immediate spiraled improvements that will reduce the probability of successful engagement, increase the probability of detecting and countering threat systems, and improve the aircraft's ability to continue operating after sustained battle damage. This program includes development and testing of both new systems and pre-planned product improvements (P3I)/upgrades of fielded survivability equipment, flares, and associated qualification testing. P3I upgrades may include, but are not limited to, expansion of frequency ranges on existing systems, modernization of legacy components, and studies directed at potential "collaborative off-boarding/on-boarding" detect/countermeasure capabilities to provide expanded coverage for aircrews in a high threat environment. ***FY 2018 Plans:*** Begin development of new systems, P3I/upgrades of fielded survivability equipment, and continue development of flare countermeasures. ***FY 2019 Base Plans:*** Continues development of new systems, P3I/upgrades of fielded survivability equipment, and continues development of flare countermeasures. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease of $11.781 million is due to completing the development effort associated with Block I Radio Frequency Countermeasures in FY 2018 ($9.162 million) and a decrease of $2.619 million to account for the availability of prior year execution balances.	1.573	15.889	4.108	-	4.108
Title: Secure Real Time Video	-	0.592	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: Ensures that SOF aircrews and operators have access to the latest data collected on the objective enabling them to maintain situational awareness enroute and improve survivability. This project will integrate and test software and hardware improvements to provide SOF helicopters with access to rapidly evolving, real-time Full Motion Video (FMV) intelligence. ***FY 2018 Plans:*** Conduct evaluations of candidate FMV Transceivers having reduced size, weight, and power (SWaP). ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease of $0.592 million is due to higher command priorities.					
Accomplishments/Planned Programs Subtotals	40.209	52.552	20.010	-	20.010

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PROC/0201RWUPGR: *Rotary Wing Upgrades and Sustainment*	164.596	158.988	148.351	-	148.351	143.788	149.300	152.009	155.215	Continuing	Continuing
• 0201MH60: *MH-60 Blackhawk*	18.600	-	0.000	27.600	27.600	-	-	-	-	953.413	953.413
• 0601MH47: *MH-47 Chinook*	29.022	97.615	167.533	-	167.533	174.617	175.266	178.771	182.346	Continuing	Continuing

Remarks

D. Acquisition Strategy

• A/MH-6M Block 3.0 Upgrade comprises of two distinct efforts: airframe and avionics upgrades. Additionally within the airframe upgrade, there are two sub efforts (new rotor blades/flight control kits and new integrated airframe shells). The airframe efforts (new rotor blades/flight control kits and new shells) will be a sole-source contract to Boeing, owner of the technical data associated with the A/MH-6 airframes. The cockpit avionics architecture will be developed by Rockwell-Collins. Any new hardware components will be Non Developmental Item/Commercial-Off-The-Shelf to the extent possible and will be competitively selected. Airframe modification and integration work will be conducted at the Special Operations Forces Support Activity (SOFSA) by the incumbent contractor.

• MH-60M Modifications and Upgrades supports systems integration and qualification efforts on the prototype MH-60M helicopter. This includes, but is not limited to, government and contractor flight test support, engineering analysis, documentation, and airworthiness substantiation. Airframe modification and integration work will be conducted at SOFSA by the incumbent contractor.

• MH-60M Block Upgrades are accomplished for 72 MH-60M base aircraft with various contractors and acquisition vehicles. The SOFSA executes SOF-unique upgrade modifications onto the MH-60M base aircraft.

Exhibit R-2A, RDT&E Project Justification: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

• DVE integrates and qualifies a solution to address a safety of flight issue while flying in DVE. A competitive source selection process was conducted for the DVE solution which will procure, integrate, and install components to provide real-time “see through” imagery and visual cues for obstacle avoidance and landing zone information during all phases of flight.

• FVL is the SOF aviation participation in the Joint FVL effort to develop the next generation of vertical takeoff and landing aircraft and establishes the foundation for the transformation of DOD vertical lift aviation capabilities over the next forty years.

• IRCM integrates a mission configurable Missile Warning System and IRCM capability at a weight suitable for the A/MH-6 aircraft. Procurement of systems for integration and test will leverage Department of Navy IRCM development efforts and contracts. The Government will integrate the systems onto the A/MH-6 utilizing existing aircraft modification contracts.

• MH-47 Modifications and Upgrades will develop technologies to improve performance and safety of the MH-47G and decrease operational costs. Efforts include the APAS and Engine Barrier Filter. The upgrades and modifications mostly consist of Government executed integration, testing, and qualification efforts with some analytical engineering services to be completed.

• MPU - Provides for future cockpit architecture studies that will help define the replacement of current mission and video processors for all ARSOA platforms. Additionally it will address near term required upgrades to existing components. Potential upgrades will be through existing OEMs, while the future cockpit architecture studies will be competitively awarded.

• The ASE Upgrades program develops and tests both new systems and pre-planned product improvements/upgrades of fielded survivability equipment and flares. For new systems, other services’ development and testing contracts are leveraged to the maximum extent possible. Upgrades of fielded equipment are typically accomplished by the OEM.

• The SRTV project integrates and tests software and hardware improvements to provide SOF helicopters with access to rapidly evolving, real-time FMV intelligence. A variety of contracting methods will be used for acquiring test assets, accomplishing SOF-unique modifications and testing to include use of other services’ contracts, competition, sole source awards, and directed efforts of government organizations.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 United States Special Operations Command			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Degraded Visual Environment (DVE)	C/Various	PM TAPO : Fort Eustis, VA	37.301	9.117	Sep 2017	-		1.672	Apr 2019	-		1.672	0.000	48.090	-
MH-47 Modifications and Upgrades	C/Various	PM TAPO : Fort Eustis, VA	17.826	11.191	Oct 2016	10.721	Nov 2017	5.305	Nov 2018	-		5.305	Continuing	Continuing	-
Aircraft Survivability Equipment (ASE) Upgrades	C/Various	PM TAPO : Fort Eustis, VA	-	1.573	Nov 2017	15.889	Mar 2018	4.108	Mar 2019	-		4.108	Continuing	Continuing	-
Secure Real Time Video	C/Various	PM TAPO : Fort Eustis, VA	-	-		0.592	Feb 2018	-		-		-	Continuing	Continuing	-
Prior Years Funding	C/Various	PM MELB : Fort Eustis, VA	59.820	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	114.947	21.881		27.202		11.085		-		11.085	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Future Vertical Lift	C/Various	PEO-RW : MacDill AFB, FL	1.605	0.514	Feb 2017	1.123	Feb 2018	0.800	Feb 2019	-		0.800	Continuing	Continuing	-
		Subtotal	1.605	0.514		1.123		0.800		-		0.800	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A/MH-6M Block 3.0 Upgrades	C/Various	PM MELB : Fort Eustis, VA	-	13.420	Dec 2016	13.384	Nov 2017	3.120	Nov 2018	-		3.120	Continuing	Continuing	-
MH-60M Modification and Upgrades	C/Various	Various : Various	-	0.952	Mar 2017	3.479	Apr 2018	2.182	Apr 2019	-		2.182	Continuing	Continuing	-
IRCM Integration and Testing	C/Various	PM TAPO : Fort Eustis, VA	-	3.442	Jun 2017	2.277	Feb 2018	2.461	Feb 2019	-		2.461	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 United States Special Operations Command			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) D615 / *Rotary Wing Aviation*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MPU	C/Various	PM TAPO : Fort Eustis, VA	-	-		5.087	Apr 2018	0.362	Apr 2019	-		0.362	Continuing	Continuing	-
Prior Years Funding	C/Various	Various : Various	24.847	-		-		-		-		-	0.000	24.847	-
		Subtotal	24.847	17.814		24.227		8.125		-		8.125	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	141.399	40.209		52.552		20.010		-		20.010	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

A/MH-6 Program Schedule

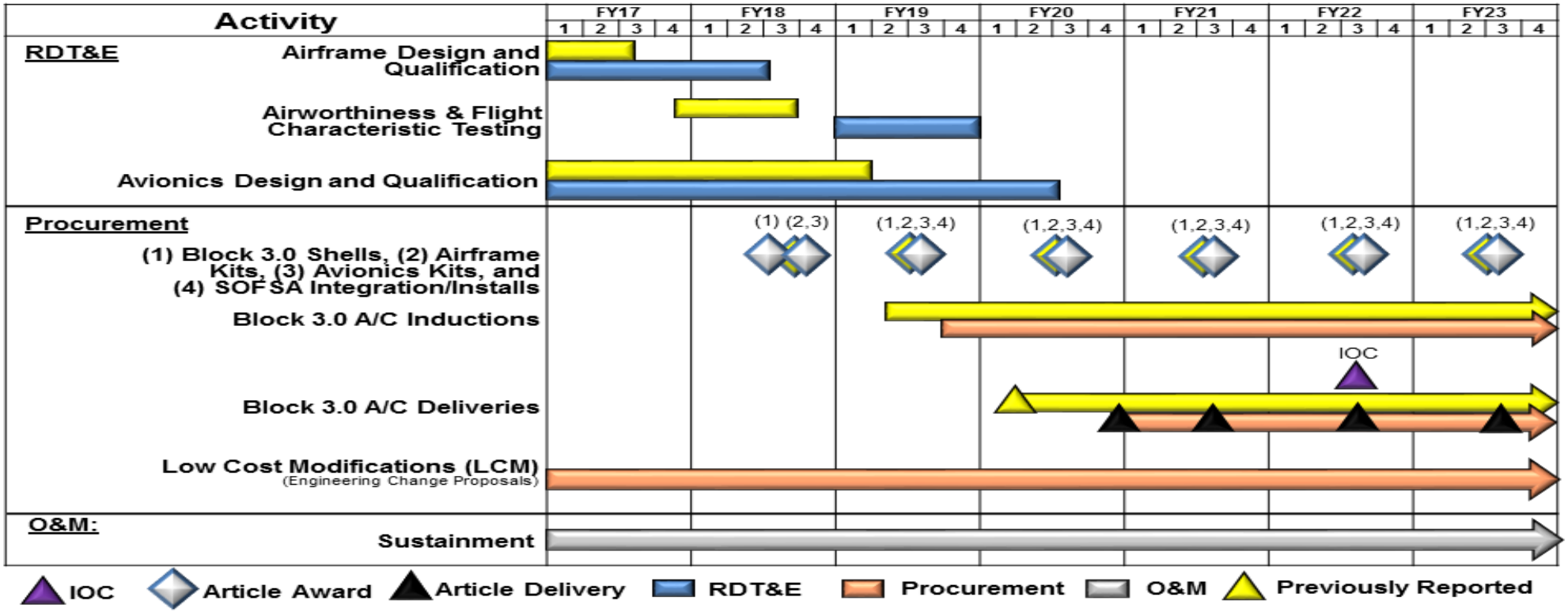

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

MH-60M Program Schedule

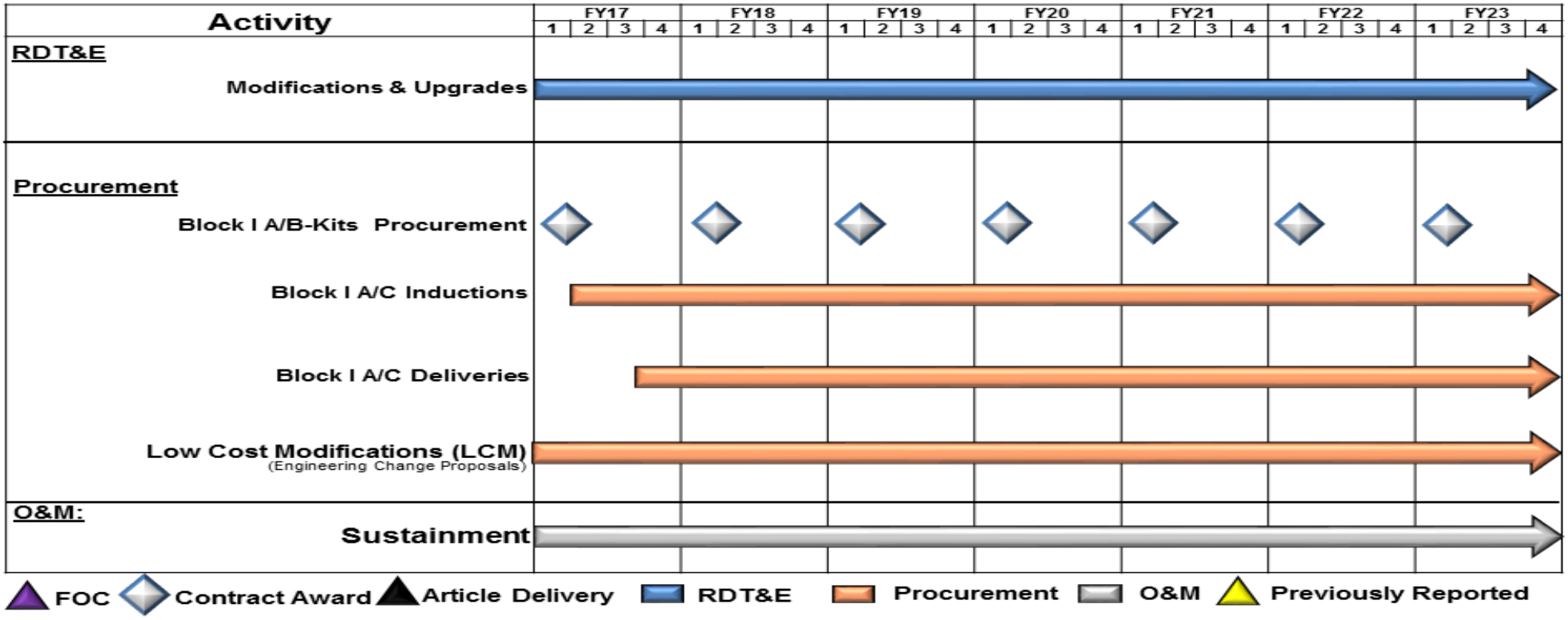

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Degraded Visual Environment Schedule

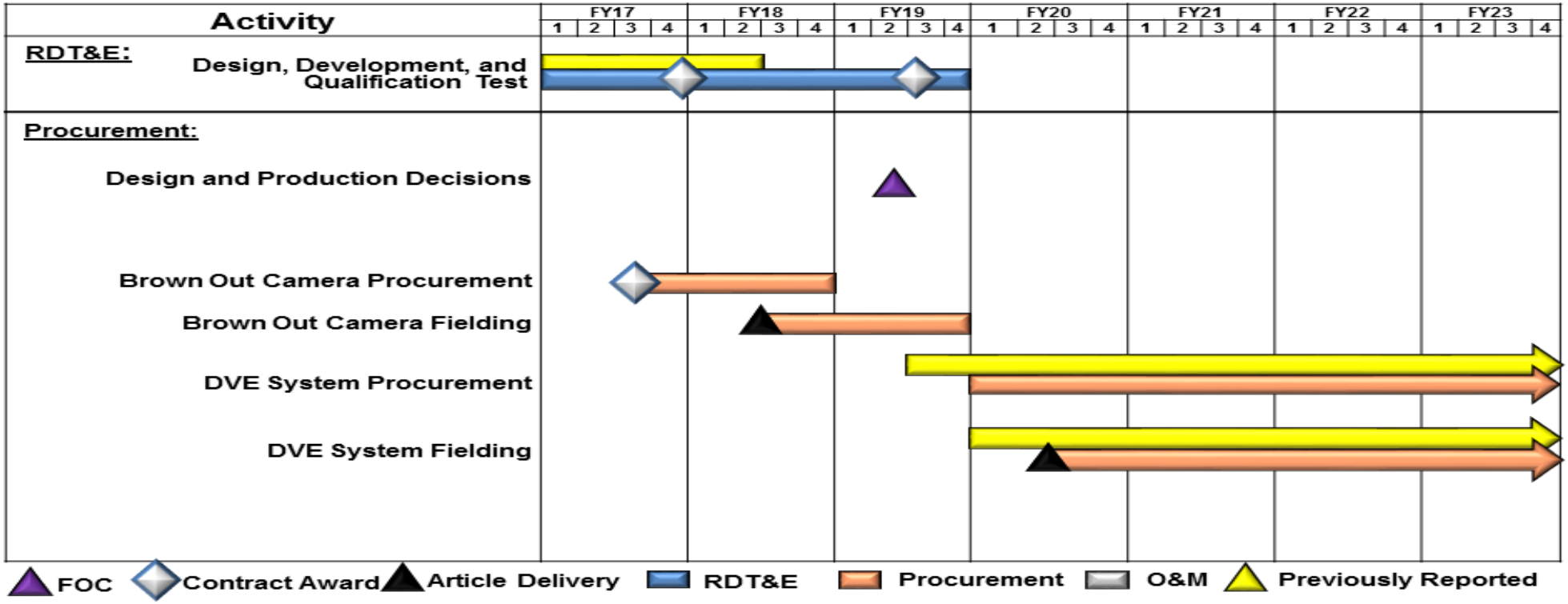

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Future Vertical Lift Schedule

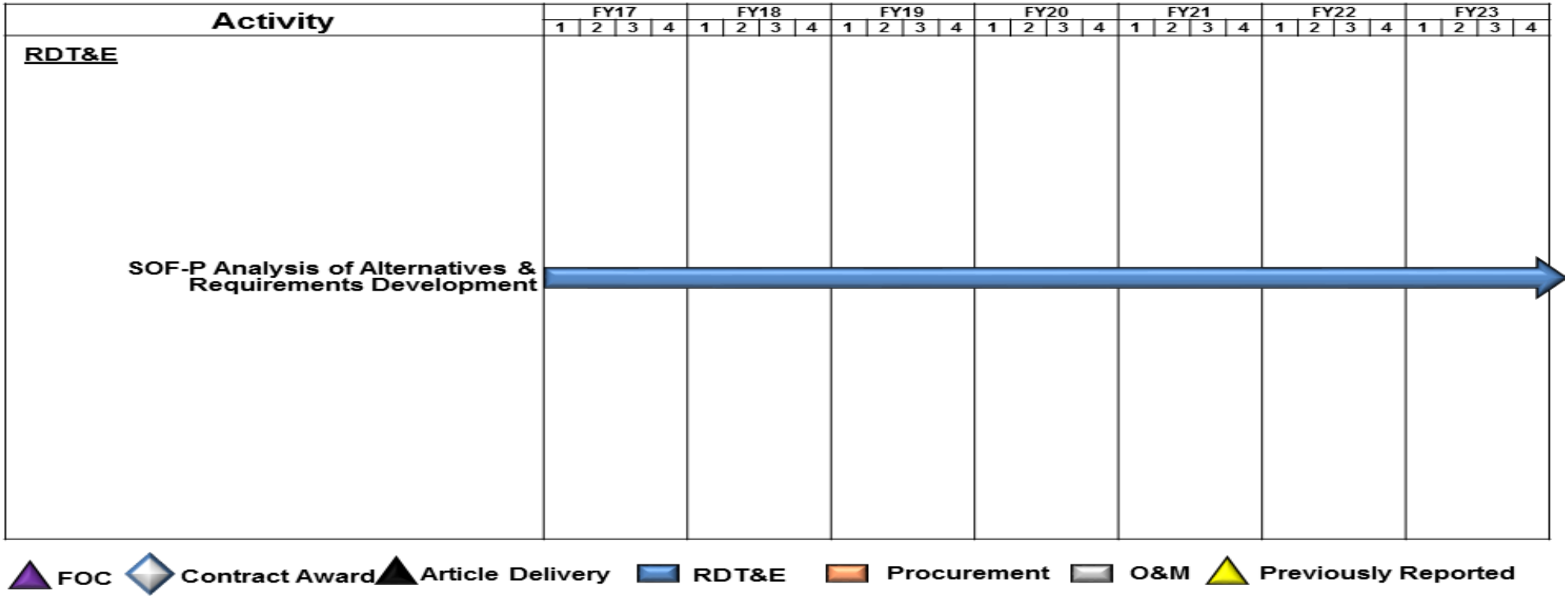

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

MH-47 Chinook Renew Schedule

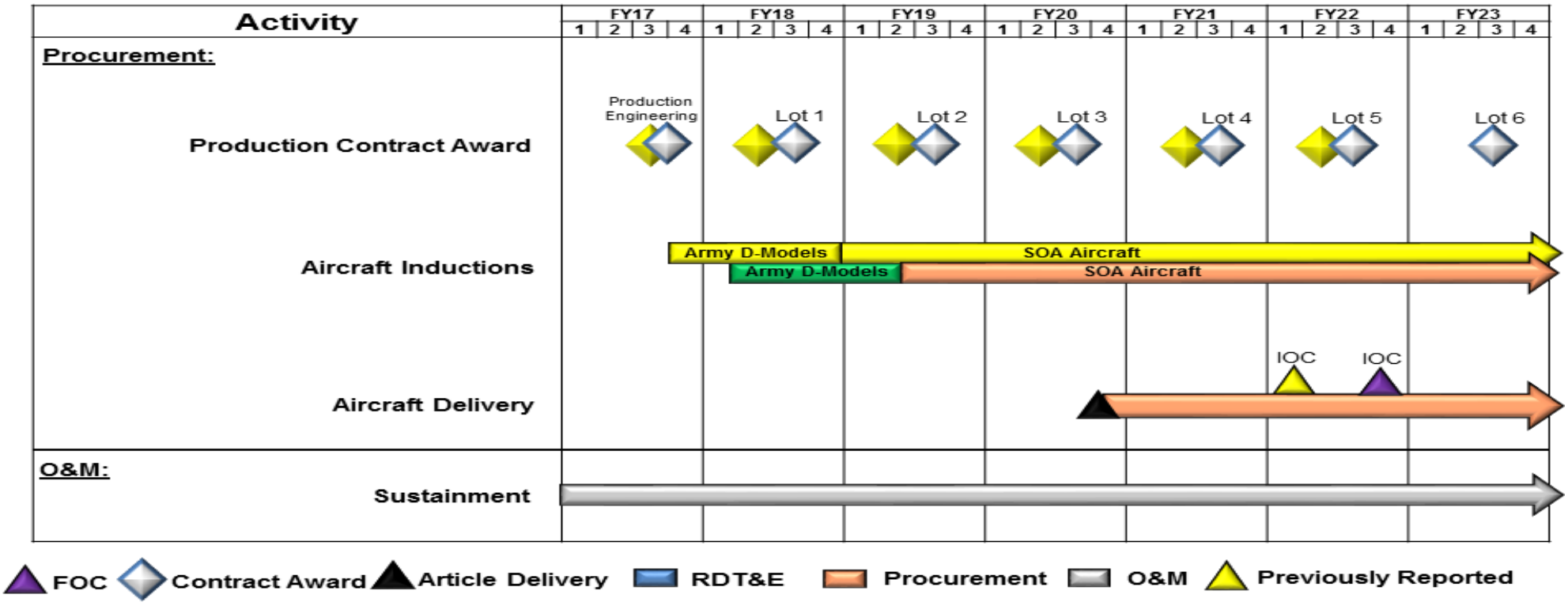

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Mission Processor Upgrades Schedule

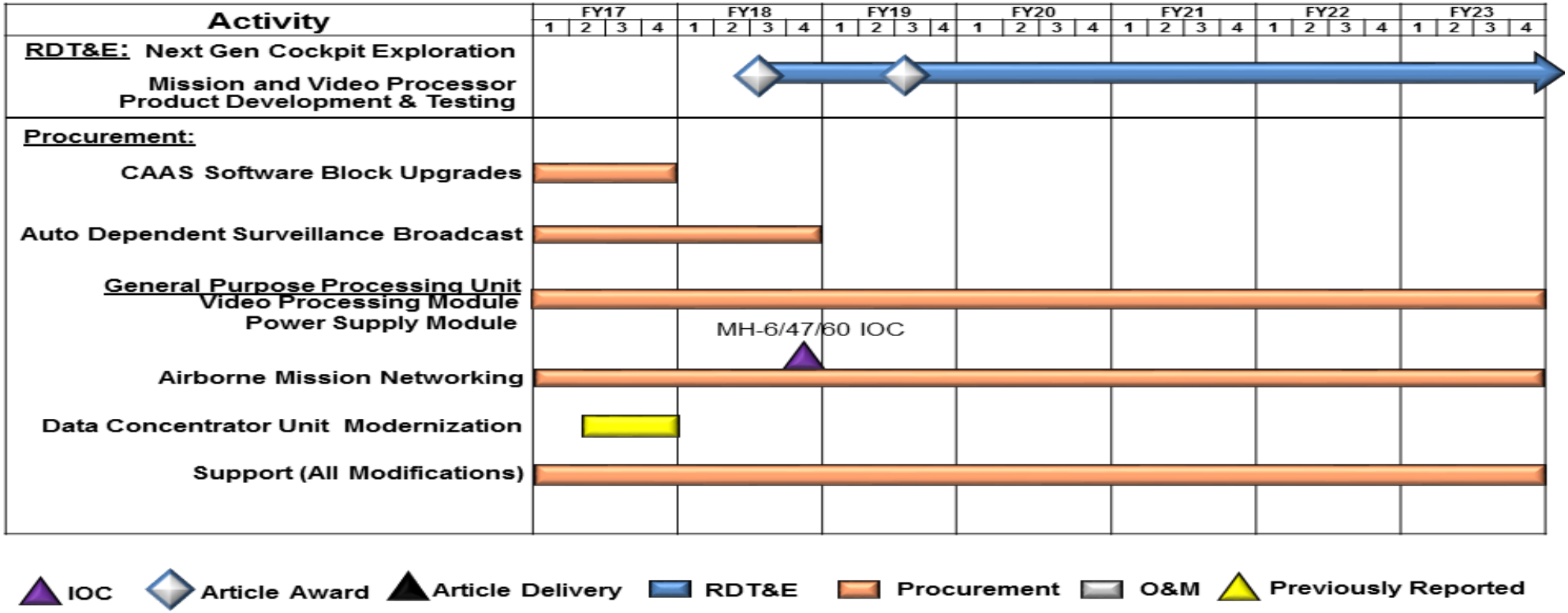

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Aircraft Survivability Equipment Schedule

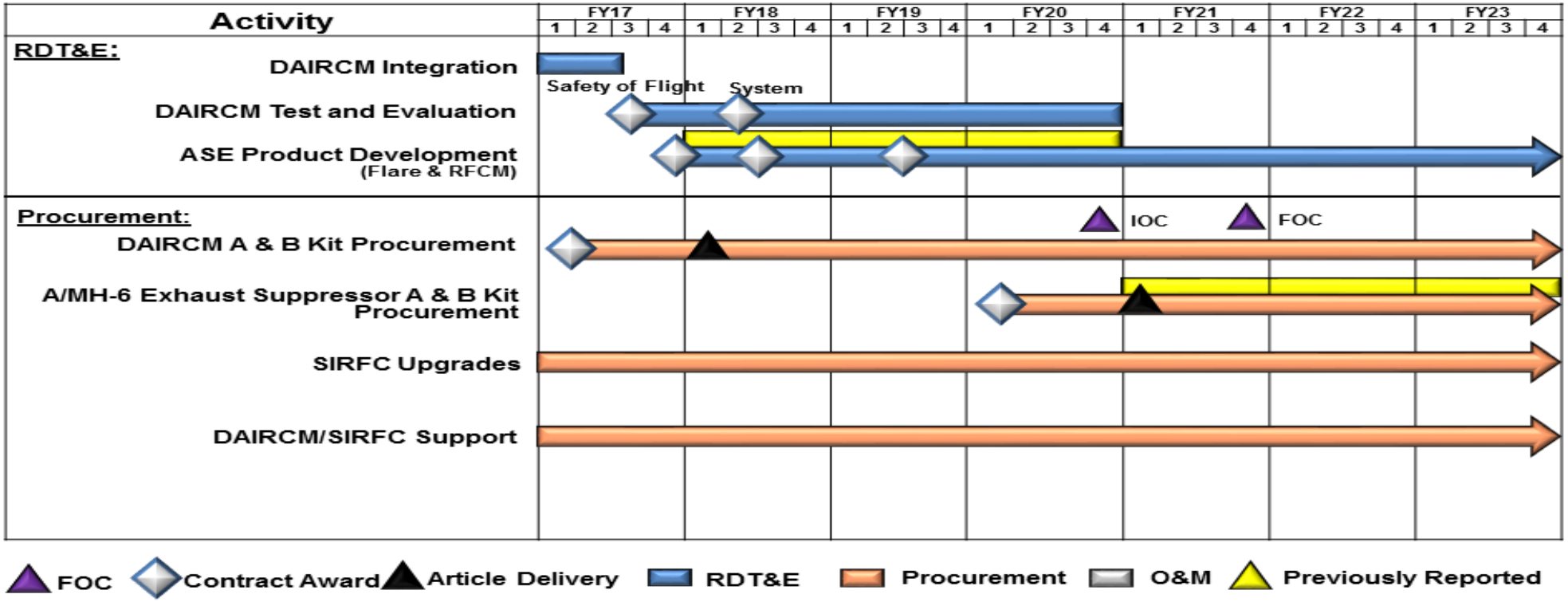

Exhibit R-4, RDT&E Schedule Profile: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Secure Real Time Video Schedule

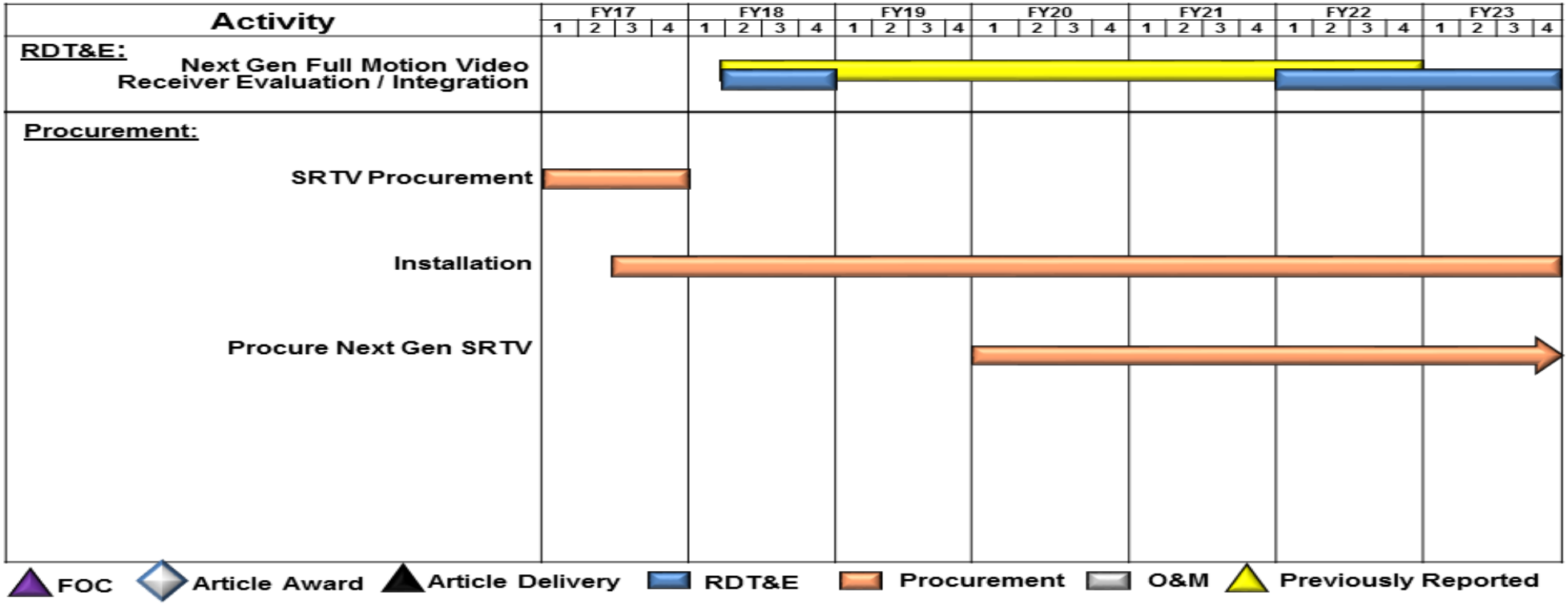

Exhibit R-4A, RDT&E Schedule Details: PB 2019 United States Special Operations Command		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
A/MH-6M Block 3.0				
Airframe Design and Qualification	1	2017	3	2018
Airworthiness and Flight Characteristics	3	2018	4	2019
Avionics Design, Test, and Qualification	1	2017	4	2020
MH-60M Modifications and Block Upgrades				
Modifications and Upgrades	1	2017	4	2023
Integration and Flight Test Qualification	1	2017	4	2017
Degraded Visual Environment				
Design, Development, and Qualification	4	2017	4	2021
Future Vertical Lift				
SOF-P Analysis of Alternatives/Requirements Development	1	2017	4	2023
MH-47 Block Upgrades				
Development of Modifications and Upgrades	1	2017	4	2023
Mission Processor Upgrades				
Mission and Video Processor Development and Testing	3	2018	4	2023
Aircraft Survivability Equipment				
IRCM Integration	1	2017	3	2017
IRCM Test and Evaluation	1	2017	4	2020
ASE Product Development	1	2017	4	2023
Secure Real Time Video				
Development of Next Generation SRTV	2	2018	4	2018