Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command	Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	1,328.111	168.026	267.695	230.812	-	230.812	144.939	122.572	132.585	168.726	Continuing	Continuing
SF100: *Aviation Systems Advanced Development*	979.207	98.093	153.860	102.431	-	102.431	37.556	9.365	17.237	51.122	Continuing	Continuing
SF200: *CV-22*	15.936	27.344	28.081	16.773	-	16.773	9.634	17.942	18.360	18.727	Continuing	Continuing
SF300: *Armed Overwatch/ Targeting*	-	0.000	0.000	5.000	-	5.000	0.000	0.000	0.000	0.000	Continuing	Continuing
S750: *Mission Training and Preparation Systems*	34.573	7.251	8.595	9.630	-	9.630	9.548	9.747	9.972	10.172	Continuing	Continuing
S875: *AC/MC-130J*	47.277	16.480	29.391	55.083	-	55.083	53.742	54.797	56.069	57.182	Continuing	Continuing
D615: *Rotary Wing Aviation*	251.118	18.858	47.768	41.895	-	41.895	34.459	30.721	30.947	31.523	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, rapid prototyping, 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 common avionics; SOF Common Terrain Following/Terrain Avoidance (TF/TA) radar, best known as Silent Knight Radar (SKR) or AN/APQ-187; 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 Recapitalization, and other SOF airborne platforms; digital terrain elevation data and electronic order of battle; digital maps; Tactical Mission Networking (TMN), formerly known as Airborne Mission Networking (AbMN); 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; mission systems automation 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 (infill), exfiltration (exfill), and resupply to SOF 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, rapid prototyping, and test to provide improved capabilities to include, but not limited to, more robust performance in situational awareness, ISR, weapons, avionics, SOF communications, defensive/survivability systems, maneuverability, mission deployment and improved reliability and maintainability of the CV platform.

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CV-22 SOF Common TF/TA SKR 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 technology limited TF/TA AN/APQ-174/186 Multi-Mode Radar (MMR). The Full-azimuth Defensive Weapon System (FDWS), in combination with the ramp-mounted gun, provides a ~360 degree field of fire to suppress/eliminate enemy targets. The FDWS integrates the fielded GAU-17 belly gun system currently employed on the United States Marine Corps (USMC) MV-22 aircraft with the SOF peculiar Color Helmet Mounted Display (CHMD) and cockpit firing controls for pilot operation.

SF300: Armed Overwatch:
Armed Overwatch provides Special Operations Forces (SOF) deployable and sustainable aircraft systems fulfilling Close Air Support, Precision Strike, and SOF Intelligence, Surveillance & Reconnaissance (ISR) requirements in austere and permissive environments for the Countering-Violent Extremist Organizations mission. Armed Overwatch missions include: Armed ISR, Strike Coordination & Reconnaissance, and Airborne Forward Air Control. The funding in this project supports development, integration, prototype demonstrations, testing of SOF-unique capabilities and Air Worthiness Release efforts.

S750 Mission Training and Preparation Systems:
The Special Operations Mission Planning and Execution (SOMPE) project funds the definition, design, development, rapid 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 Combat Talon I, 23 MC-130P Combat Shadow, and 20 MC-130H Combat Talon II airframes will be replaced by MC-130J Commando II aircraft with SOF mission modifications. The MC-130J Commando II aircraft provide clandestine single or multi-ship low-level aerial refueling for special operations helicopters and CV-22 aircraft; and conducts airdrops of leaflets, 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. Incremental upgrade and agile software delivery approaches will be used to rapidly prototype, integrate and mature SOF capabilities onto the aircraft. SOF capabilities include, but are not limited to: Airborne Mission Networking (AbMN), 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 (AFSOC) legacy C-130 fleet.

D615 Rotary Wing Aviation:
This project provides for the development, rapid prototyping, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique rotary wing aviation and training requirements. This project includes modifications to Aircraft Survivability Equipment (ASE), avionics, and weapons systems

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to counter rapidly emerging threats, address cyber security, improve lethality and enhance 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 operations at extended ranges under adverse weather conditions to infiltrate, provide logistics for, reinforce, and extract SOF in the multi-domain operations (MDO) environments and against near peer threats. 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.

These technologies will be pursued via rapid prototyping efforts when appropriate.

B. Program Change Summary ($ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	175.862	245.795	206.685	-	206.685
Current President's Budget	168.026	267.695	230.812	-	230.812
Total Adjustments	-7.836	21.900	24.127	-	24.127
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	16.000			
• Congressional Directed Transfers	-	8.400			
• Reprogrammings	-1.652	-			
• SBIR/STTR Transfer	-6.184	-			
• Other	-	-	24.127	-	24.127

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2019	FY 2020
Project: SF100: *Aviation Systems Advanced Development*		
Congressional Add: *Vertical Takeoff and Landing (VTOL) Unmanned Aircraft System (UAS) Research*	3.000	-
Congressional Add: *Classified Project*	-	8.000
Congressional Add Subtotals for Project: SF100	3.000	8.000
Project: D615: *Rotary Wing Aviation*		
Congressional Add: *Future Vertical Lift (FVL)*	-	8.000
Congressional Add Subtotals for Project: D615	-	8.000
Congressional Add Totals for all Projects	3.000	16.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 United States Special Operations Command	Date: February 2020
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*

Change Summary Explanation

Funding:

FY 2019: Net decrease of $7.836 million is due to transfer of funds to Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) reductions (-$6.184 million) and funding made available to support emergent Command requirements in the year of execution (-$1.652 million).

FY 2020: Net increase of $13.900 million includes: $8.000 million Congressional Add to Future Vertical Lift (FVL) enables engineering design work on SOF-peculiar requirements for two prototype Future Attack Reconnaissance Aircraft (FARA) air vehicles; while simultaneously executing prototype and engineering on other lines of effort; Future Long Range Assault Aircraft (FLRAA), Air Launched Effects (ALE) and Modular Open System Architecture (MOSA). Congressional add of net $8.400 million is for Electronic Warfare Radio Frequency Countermeasures (EW-RFCM) to support product development, support, test and evaluation. Congressional directed reduction of $2.500 million from Integrated Tactical Mission Systems (ITMS) due to unjustified growth.

FY 2021: Net increase of $24.127 million is due to an increase for the Tactical (Airborne) Mission Networking (TMN) to explore capabilities to enable the rapid incorporation of advanced waveforms and the incorporation of advanced communications and networking hardware onto the ARSOA Aircraft ($3.000 million); an increase in Future Vertical Lift (FVL) to deploy and integrate SOF-unique capabilities in the FVL Family of Systems (FoS) ($2.000 million); the Improved Rotary Wing Electro-Optical Sensor (IRES) program, formerly known as Next Generation Forward Looking Infrared (NGFLR), to commence software changes to integrate onto AH-6, MH-6, and MH-60M platforms, and complete combined development and operations testing ($3.500 million); an increase for the Aviation Engineering Analysis (AEA) to improve SOF aviation mission survivability ($3.947 million); an increase for the CV-22 SOF Common TF/TA Silent Knight Radar (SKR) to continue integration and testing ($6.680 million); and an increase of funding provided for the Armed Overwatch/Targeting program as a departmental directed requirement ($5.000 million)

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command			Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
SF100: *Aviation Systems Advanced Development*	979.207	98.093	153.860	102.431	-	102.431	37.556	9.365	17.237	51.122	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development, rapid prototyping, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation and training requirements. Timely application of SOF Common technology is critical and necessary to meet requirements in such areas as: SOF common avionics; SOF Common Terrain Following/Terrain Avoidance (TF/TA) radar, best known as Silent Knight Radar (SKR) or AN/APQ-187; 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 Recapitalization, and other SOF airborne platforms; digital terrain elevation data and electronic order of battle; digital maps; Tactical Mission Networking (TMN), formerly known as Airborne Mission Networking (AbMN); 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; mission systems automation and ISR payload technological improvements with size, weight, power and integration onto all SOF Unmanned Aircraft System (UAS) ISR platforms.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: EW – RFCM	17.094	53.139	52.934
Description: EW-RFCM supports development, integration, and test activities to provide Electronic Warfare (EW) capability against Radio Frequency (RF) threats for SOF-unique AC/MC-130J aircraft. The RFCM system is part of the Defensive Countermeasures (DCM) suite that provides situational awareness and threat response processing required for SOF missions.			
FY 2020 Plans: Reintroduce competition to address struggling vendor performance. Begin hardware in the Loop system demonstration activities for up to four vendors at Government labs to support a best value decision and program restart in 3QFY20. Remaining funds support incremental funding of the follow-on development contract for remaining aircraft integration, hardware and software qualification, software development, and developmental and operational test.			
FY 2021 Plans: Begins first test kit installations of new RFCM system for AC-130J and MC-130J aircraft, interoperability design with MC-130J SOF Common TF/TA Radar, and begins system developmental test. Continues aircraft integration, system qualification, and software deficiency resolution.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Decrease of $0.205 million due to reduced Government test facility costs going from three vendor demonstrations in FY20 to one vendor developmental test in FY21.			
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, 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 2020 Plans:*** Continue development, integration, test, and system improvement of the PSP, to include defensive systems, EO/IR sensors, and adverse weather and special mission processor capabilities on SOF C-130s and other SOF aircraft. Complete development of the infrared suppression system and other defensive systems. ***FY 2021 Plans:*** Continues development, integration, test, and system improvement of the PSP, to include defensive systems, EO/IR sensors, and adverse weather and special mission processor capabilities on SOF C-130s and other SOF aircraft. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of $23.899 million is due to the expected completion of developing the infrared suppression system and other defensive systems.	14.697	28.528	4.629
Title: PSP High Energy Laser (HEL) ***Description:*** The HEL effort leverages a rapid prototyping approach to demonstrate integration of a laser weapon system onto an AC-130J aircraft. Utilizing a best of breed approach, it integrates laser, beam control, power and thermal subsystems via a government lead system integrator. This provides additional flexibility for rapid prototyping and future modifications. ***FY 2020 Plans:*** Take receipt of subsystems ordered and begin assembly of subsystems into weapon systems. Begin integration and ground testing of assembled subsystems. Complete purchase of developmental long lead items. ***FY 2021 Plans:*** Continues assembly of subsystems into weapon systems. Continues integration and ground testing of assembled subsystems. Begins flight testing of subsystems. ***FY 2020 to FY 2021 Increase/Decrease Statement:***	26.022	27.227	24.195

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Decrease of $3.032 million is due to completion of purchase of developmental long lead items.			
Title: C-130 SOF Common TF/TA SKR	32.477	32.524	12.456
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 and reduce pilot, copilot and Combat Systems Officer workload during missions previously performed by five aircrew members on legacy MC-130 tankers and penetrators.			
FY 2020 Plans: Continue MC-130J TF/TA developmental flight test on aircraft modified with SOF Common TF/TA radar. Begin development and interoperability testing on MC-130J TF/TA radar and airborne mission networking systems. Complete MC-130J SOF Common TF/TA SKR development and integration testing.			
FY 2021 Plans: Completes MC-130J TF/TA developmental flight test and integration testing on aircraft modified with SOF Common TF/TA radar. Continues development and interoperability testing on MC-130J TF/TA systems, electronic warfare systems, and airborne mission networking systems. Trains AFSOC aircrews on an MC-130J modified with a SOF Common TF/TA SKR for operational testing. Resolves deficiencies reported during developmental or operational flight testing.			
FY 2020 to FY 2021 Increase/Decrease Statement: Decrease of $20.068 million is due to the completion of MC-130J SOF Common TF/TA SKR development and integration testing.			
Title: MH-47/MH-60 SOF Common TF/TA SKR	3.089	2.476	2.362
Description: MH-47/MH-60 SOF Common TF/TA (Silent Knight) radar supports continuing capability enhancements, testing, and qualification of the TF/TA Low Probability of Intercept and Low Probability of Detection (LPI/LPD) radar to defeat advanced passive detection threats while maintaining safe Terrain Following (TF) capabilities.			
FY 2020 Plans: Continues software spiral efforts to include design, development, integration, and testing of SOF Common TF/TA SKR to reduce Terrain Following signature, improve Aircraft Survivability Equipment (ASE) interoperability support, sensor fusion initiatives, and increase reliability.			
FY 2021 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Continues software spiral efforts to include design, development, integration, and testing of SOF Common TF/TA SKR to reduce Terrain Following signature, improve ASE interoperability support, sensor fusion initiatives, and increase reliability. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of $0.114 million is due to minor adjustments.			
Title: ISR Payload ***Description:*** ISR Payload Sensor Technology supports development, integration, and testing of sensor miniaturization efforts to adapt large unmanned system ISR capabilities on all SOF unmanned ISR platforms. ***FY 2020 Plans:*** Continue spiral development to increase the smaller SOF ISR platforms' capabilities through incremental development, integration, and testing. ***FY 2021 Plans:*** Continues spiral development to increase the smaller SOF ISR platforms' capabilities through incremental development, integration, and testing. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of $0.058 million is due to minor adjustments.	1.214	1.966	1.908
Title: Aviation Engineering Analysis (AEA) ***Description:*** Funding supports engineering analysis activities to address aviation survivability such as signature management, situational awareness, and versatile mission equipment (payloads, communications and weapons) to achieve SOF mission objectives. ***FY 2021 Plans:*** Performs engineering analysis to improve SOF aviation mission survivability. Activities include, but are not limited to, signature management (acoustic, infrared, radio frequency), situational awareness with full spectrum threat warning and countermeasures, and versatile mission equipment (payloads, communications and weapons) to improve SOF survivability in less than permissive operating environments. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase of $3.947 million is due to transfer from SOF Advanced Technology Development (PE 1160402BB).	-	-	3.947
Title: Avionics Modifications (AVNCS) ***Description:*** Funding supports software development and integration for the MC/EC-130J GPS Hardening effort.	0.500	-	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Accomplishments/Planned Programs Subtotals	95.093	145.860	102.431

	FY 2019	FY 2020
Congressional Add: Vertical Takeoff and Landing (VTOL) Unmanned Aircraft System (UAS) Research ***FY 2019 Accomplishments:*** Funds to be reprogrammed to the Army.	3.000	-
Congressional Add: Classified Project ***FY 2020 Plans:*** Details provided under Separate Cover	-	8.000
Congressional Adds Subtotals	3.000	8.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/5000C13000: *C-130 Modifications*	72.942	15.582	20.414	-	20.414	14.985	15.545	18.217	18.595	Continuing	Continuing
• PROC/2012C130J: *AC/MC-130J*	163.181	143.232	163.914	-	163.914	213.649	296.535	322.669	333.789	Continuing	Continuing
• PROC/1202PSP: *Precision Strike Package*	229.674	232.930	243.111	-	243.111	167.714	141.180	134.636	137.334	Continuing	Continuing
• PROC0201RWUPGR: *Rotary Wing Upgrades and Sustainment*	148.907	172.020	211.041	-	211.041	230.870	247.497	267.854	258.750	Continuing	Continuing

Remarks

D. Acquisition Strategy

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

• EC-130J Commando SOLO: This program is being transitioned into the Multi Mission Payload - Heavy (MMP-H) program, Warrior Systems, PE 1160431BB. MMP-H uses a traditional acquisition development and procurement strategy with accelerated development that includes increased flight test and multiple combat evaluations.

• EW – RFCM: Scope current contract with BAE Systems to a B-Kit demonstration, and in parallel, execute three Other Transaction Authority (OTA) demonstrations with new industry partners for a best value decision and follow on award for remaining development effort in 3QFY20.

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• 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 (NSWC) Dahlgren Division as the government Lead System Integrator of HEL components. HEL system components are either purchased under Defense Ordinance Technology Consortium OTA or developed and assembled by NSWC Dahlgren. Both of these approaches provide flexibility for rapid prototyping.

• C-130 SOF Common TF/TA SKR: Awarded delivery order on Cost Plus Incentive Fee (CPIF) contract to integrate and test the SOF Common TF/TA SKR on MC-130J aircraft and develop modifications to aircraft displays and controls.

• MH-47/MH-60 SOF Common TF/TA SKR: Continue software spiral development to improve the reliability and usability of the radar.

• 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, in order to make them usable by smaller SOF ISR platforms. This development will include the integration of the ISR capability with the platform's Command and Control and Communications systems as appropriate.

• Aviation Engineering Analysis: Utilize DoD Information Analysis Center sponsored by the Defense Technical Information Center (DTIC) to analyze aircraft survivability and recommend material solutions for demonstration and potential integration on Fixed Wing aircraft.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command		Date: February 2020
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Vertical Takeoff and Landing (VTOL) Unmanned Aircraft System (UAS) Research Congressional Add	C/TBD	TBD : TBD	-	3.000	Jan 2019	-		-		-		-	0.000	3.000	-
Electronic Warfare - Radio Frequency Countermeasures (EW-RFCM)	C/CPIF	BAE Systems, Inc. : Totowa, NJ	140.061	13.494	Nov 2018	-		-		-		-	0.000	153.555	-
EW - RFCM B-Kit Competitive Demonstration	C/FFP	Various : Various	-	-		10.050	Nov 2019	-		-		-	0.000	10.050	-
EW - RFCM Follow-on Development Contract	C/TBD	TBD : TBD	-	-		34.089	May 2020	44.534	Nov 2020	-		44.534	Continuing	Continuing	-
Precision Strike Package (PSP) for SOF - Defensive Systems	C/Various	Various : Various	2.510	6.750	Jan 2019	18.641	Jan 2020	-		-		-	0.000	27.901	-
PSP for SOF - Deficiency Resolution	C/Various	Various : Various	0.600	1.400	Jan 2019	4.789	Mar 2020	-		-		-	0.000	6.789	-
PSP for SOF - Adverse Weather	C/Various	Various : Various	3.240	0.192	Jan 2019	1.000	Mar 2020	4.380	Jan 2021	-		4.380	Continuing	Continuing	-
PSP for SOF - Alternate Position, Navigation & Timing	C/Various	Various : Various	3.708	5.652	Dec 2019	-		-		-		-	0.000	9.360	-
PSP High Energy Laser (HEL) - Risk Reduction	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	1.300	3.400	Jan 2019	-		-		-		-	0.000	4.700	-
PSP HEL - High Power Laser	C/CPFF	Lockheed Martin Aculite : Bothell, WA	3.750	13.250	Dec 2018	-		2.300	Nov 2020	-		2.300	0.000	19.300	-
PSP HEL - Subsystem Assembly	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	5.658	Mar 2019	10.127	Jan 2020	6.690	Jan 2021	-		6.690	Continuing	Continuing	-
PSP HEL - Battery Development	C/CPFF	General Technical Services : Wall, NJ	-	1.914	Feb 2019	3.600	Jan 2020	-		-		-	0.000	5.514	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command			Date: February 2020
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PSP HEL - Thermal Development	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	1.800	Jan 2019	6.500	Jan 2020	-		-		-	0.000	8.300	-
PSP HEL - Integration and Ground Testing	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	-		7.000	Jan 2020	12.905	Jan 2021	-		12.905	Continuing	Continuing	-
PSP HEL-Flight Testing/ Demonstration	C/CPFF	Various : Various	-	-		-		2.300	Mar 2021	-		2.300	Continuing	Continuing	-
C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) Silent Knight Radar (SKR)	C/CPIF	Lockheed Martin Aero : Marietta, GA	165.926	21.955	Jan 2019	19.407	Jan 2020	5.847	Jan 2021	-		5.847	Continuing	Continuing	-
MH-47/MH-60 SOF Common TF/TA SKR	SS/FP	Raytheon : McKinney, TX	9.553	1.877	Apr 2019	1.733	Apr 2020	1.653	Apr 2021	-		1.653	Continuing	Continuing	-
Intelligence, Surveillance, and Reconnaissance Payload (ISR)	Various	Various : Various	4.328	1.214	Apr 2019	1.966	Nov 2019	1.908	Nov 2020	-		1.908	Continuing	Continuing	-
Aviation Engineering Analysis (AEA) – Aircraft Survivability Analysis	C/CPFF	DSIAC : Belcamp, MD	-	-		-		1.500	Jan 2021	-		1.500	Continuing	Continuing	-
AEA – Alternate Position Navigation and Timing Demo	C/CPFF	SRI : Menlo, CA	-	-		-		2.447	Jan 2021	-		2.447	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	346.629	-		-		-		-		-	0.000	346.629	-
C-130 Avionics Modifications	C/CPFF	Lockheed Martine : SOFSA Lexington, KY	-	0.500	Sep 2019	-		-		-		-	0.000	0.500	-
Classified Project	C/Various	Under Separate Cover : Under Separate Cover	-	-		8.000		-		-		-	Continuing	Continuing	-
		Subtotal	681.605	82.056		126.902		86.464		-		86.464	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130 SOF Common TF/ TA SKR	C/CPIF	Various : Various	14.230	1.859	Jan 2019	3.887	Dec 2019	1.185	Dec 2020	-		1.185	Continuing	Continuing	-
EW-RFCM	C/Various	Robins AFB : Warner Robins, GA	20.334	3.600	Jan 2019	5.919	Jan 2020	3.400	Jan 2021	-		3.400	Continuing	Continuing	-
PSP for SOF - Other Government Costs	C/Various	Various : Various	2.960	0.703	Sep 2019	4.098	Apr 2020	0.249	Feb 2021	-		0.249	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	28.802	-		-		-		-		-	0.000	28.802	-
		Subtotal	66.326	6.162		13.904		4.834		-		4.834	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EW-RFCM	C/Various	Robins AFB : Warner Robins, GA	8.380	-		3.081	Dec 2019	5.000	Dec 2020	-		5.000	Continuing	Continuing	-
C-130 SOF Common TF/ TA SKR	C/CPIF	Various : Various	27.699	8.000	Jan 2019	9.230	Dec 2019	5.424	Dec 2020	-		5.424	Continuing	Continuing	-
MH-47/MH-60 SOF Common TF/TA SKR	SS/FP	Various : Various	124.159	1.212	Jan 2019	0.743	Jan 2020	0.709	Jan 2021	-		0.709	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	29.130	-		-		-		-		-	0.000	29.130	-
		Subtotal	189.368	9.212		13.054		11.133		-		11.133	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130 SOF Common TF/ TA SKR	C/CPIF	Various : Various	10.742	0.663	Jan 2019	-		-		-		-	0.000	11.405	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Funding - Completed Efforts	Various	Various : Various	31.166	-		-		-		-		-	0.000	31.166	-
		Subtotal	41.908	0.663		-		-		-		-	0.000	42.571	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	979.207	98.093		153.860		102.431		-		102.431	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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
PEO Managed Schedule

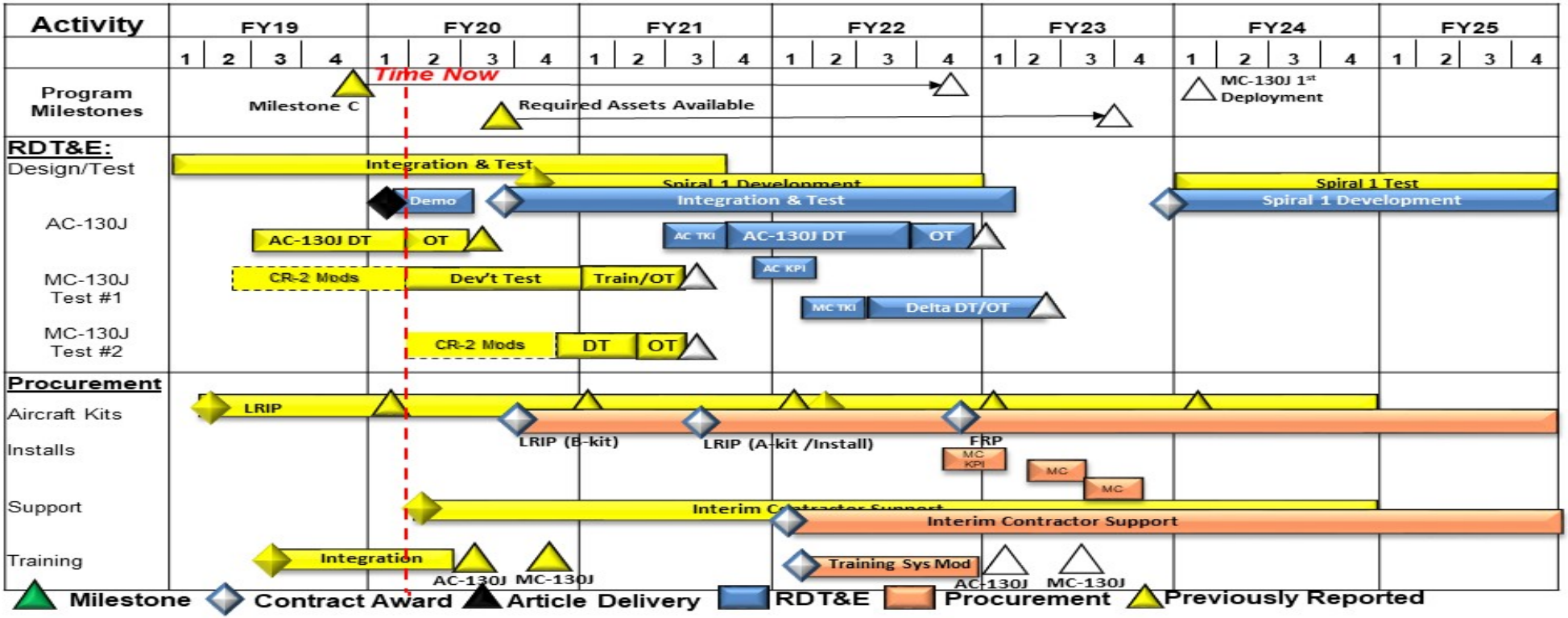

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

AC-130J/PSP
PEO Managed Schedule

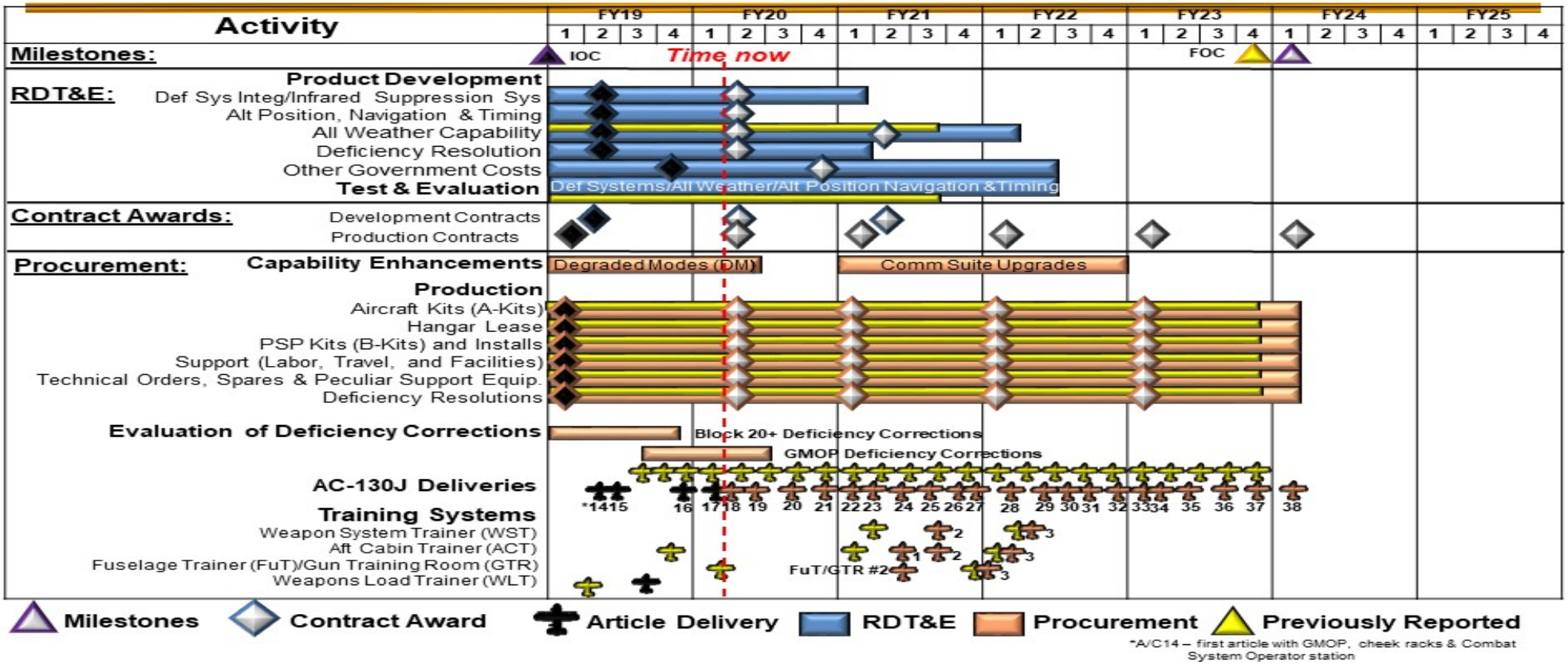

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

AC-130J High Energy Laser Schedule
PEO-Managed Schedule

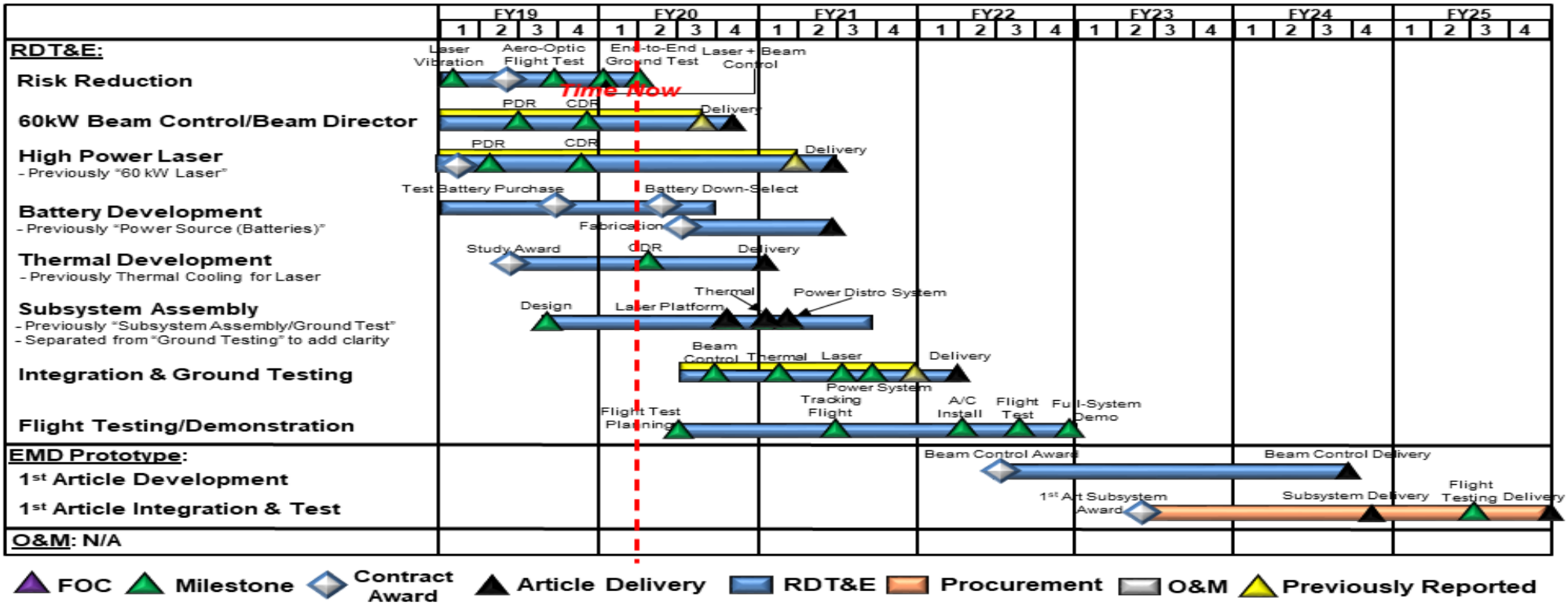

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

C-130 SOF Common TF/TA Silent Knight Radar (SKR)
PEO Managed Schedule

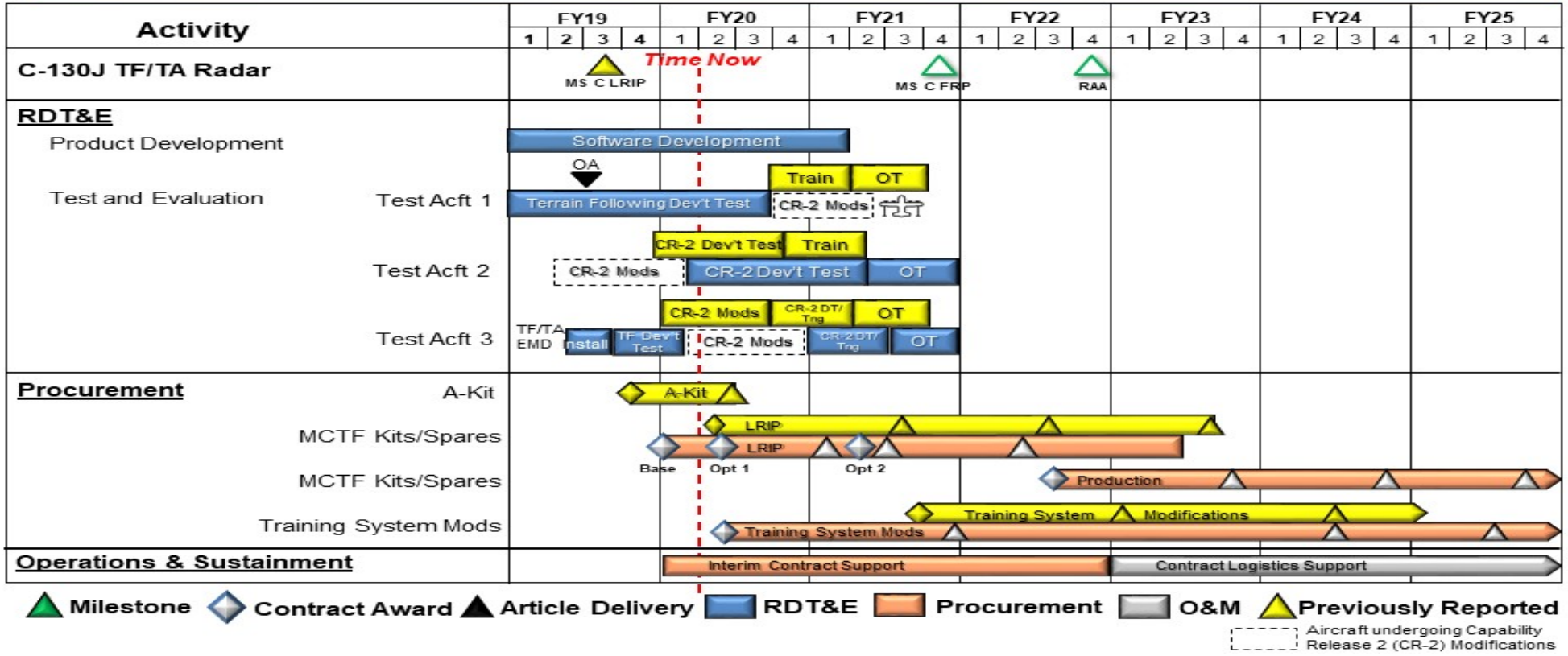


Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

MH-47/MH-60 SOF Common TF/TA (Silent Knight) Radar
PEO-Managed Schedule

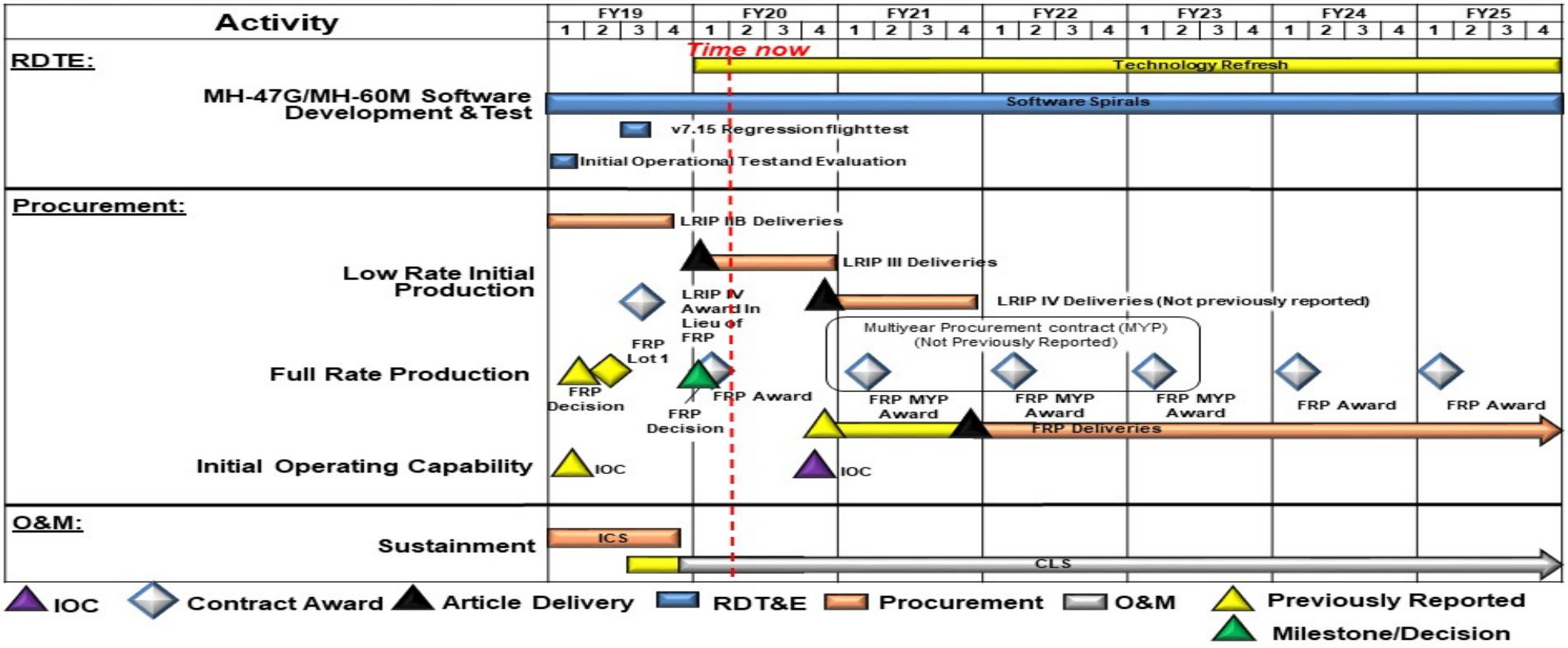


Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Intelligence, Surveillance, and Reconnaissance (ISR) Payload Sub-Project PEO-Managed Schedule

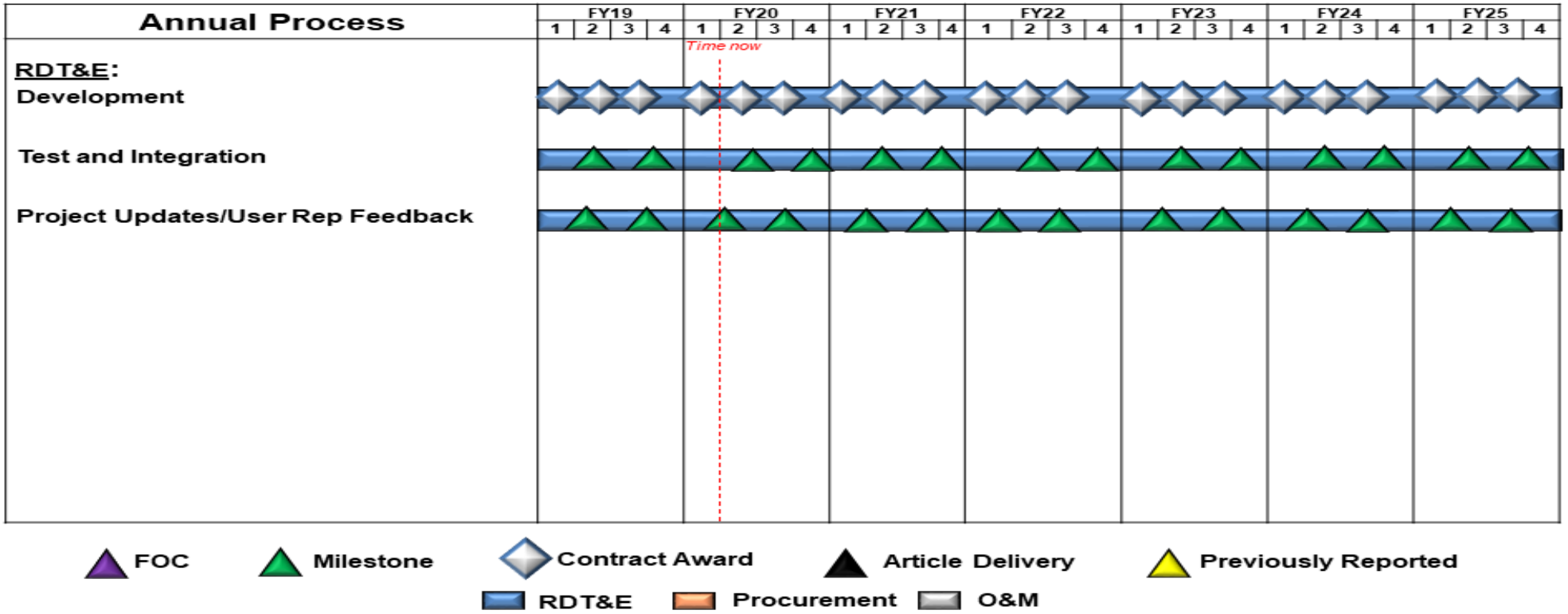


Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Aviation Engineering Analysis (AEA)
PEO Managed Schedule

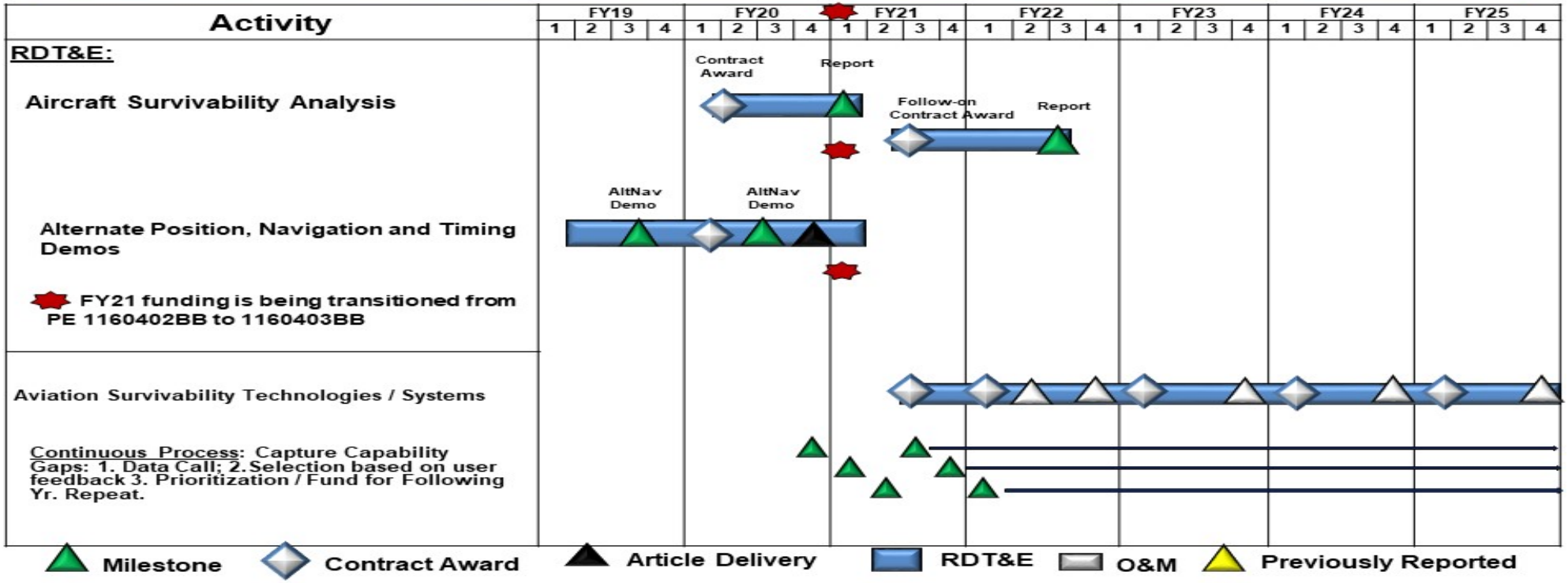


Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Electronic Warfare - Radio Frequency Countermeasures (EW-RFCM)				
Product Development, Integration and Test	3	2020	1	2023
Spiral 1 Development	1	2024	4	2025
Development Test and Operational Test (DT/OT) AC-130J	2	2021	4	2022
Development Test and Operational Test #1 (DT/OT) MC-130J	3	2022	2	2023
Precision Strike Package (PSP) for SOF				
Defensive Systems Product Development	1	2019	1	2021
Alternate Position, Navigation and Timing Product Development	1	2019	2	2020
Adverse Weather Product Development	1	2019	1	2022
Deficiency Resolution Product Development	1	2019	1	2021
Other Capability Enhancements Product Development	1	2019	2	2022
Capability Enhancements Test and Evaluation	1	2019	2	2022
PSP High Energy Laser (HEL)				
PSP HEL Risk Reduction	1	2019	2	2020
PSP HEL 60kW Beam Control/Beam Director	1	2019	4	2020
PSP HEL High Power Laser	1	2019	2	2021
PSP HEL Battery Development	1	2019	2	2021
PSP HEL Thermal Development	2	2019	1	2021
PSP HEL Subsystem Assembly	3	2019	3	2021
PSP HEL Integration and Ground Testing	3	2020	1	2022
PSP HEL Flight Testing/Demonstration	2	2020	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
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**
C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) Silent Knight Radar (SKR)				
Software Development	1	2019	1	2021
Development/Flight Testing	1	2019	2	2021
Operational Testing	2	2021	4	2021
MH-60/MH-47 SOF Common (TF/TA) SKR				
MH-47G/MH-60M Product Development & Test (Software Spirals)	1	2019	4	2025
Regression Flight Test	3	2019	3	2019
Initial Operation Test and Evaluation	1	2019	1	2019
Intelligence, Surveillance, and Reconnaissance (ISR) Payload				
Development	1	2019	4	2025
Testing and Integration	1	2019	4	2025
Project Update/User Rep Feedback	1	2019	4	2025
Aviation Engineering Analysis (AEA)				
Aircraft Survivability Analysis	1	2020	3	2022
Alternate Position, Navigation, and Timing Demo	1	2019	1	2025

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command			Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
SF200: *CV-22*	15.936	27.344	28.081	16.773	-	16.773	9.634	17.942	18.360	18.727	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 Joint V-22 vertical medium lift, multi-mission aircraft. The CV-22 project provides long range, high speed, infiltration, exfiltration, and resupply to SOF 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, rapid prototyping, and test to provide improved capabilities to include, but not limited to, more robust performance in situational awareness, intelligence, surveillance, and reconnaissance, weapons, SOF communications, avionics, defensive/survivability systems, maneuverability, mission deployment and improved reliability and maintainability of the CV-22 platform.

CV-22 SOF Common Terrain Following Terrain Avoidance (TF/TA) Silent Knight Radar (SKR): Provides long-range, night/adverse weather, clandestine penetration of medium-to-high threat areas for infiltration, exfiltration, and resupply of SOF forces. This more sustainable and capable radar replaces the obsolescing APQ-186 terrain following/avoidance radar currently integrated on CV-22 aircraft.

CV-22 Block 20 Systems: 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, ISR, weapons, SOF communications, avionics, defensive/survivability systems, maneuverability, mission deployment, improved reliability and maintainability of the CV platform. Included within Block 20 is the Full-azimuth Defensive Weapon System (FDWS). FDWS provides the CV-22 with the capability to suppress threats in the forward hemisphere while the aircraft is in the critical phase of landing and takeoff at the mission objective. The FDWS integrates the fielded GAU-17 belly gun system currently employed on the United States Marine Corps MV-22 aircraft with the SOF peculiar Color Helmet Mounted Display (CHMD) and cockpit firing controls for pilot operation.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: CV-22 SOF Common TF/TA SKR	27.344	27.587	14.644
Description: Provides long-range, night/adverse weather, clandestine penetration of medium-to-high threat areas for infiltration, exfiltration, and resupply of SOF forces. This more sustainable and capable radar replaces the obsolescing AN/APQ-174/186 Multi-Mode Radar (MMR) currently integrated on CV-22 aircraft. This effort includes development of the CV-22 SOF Common TF/TA SKR Operational Flight Program (OFP) software, and development of CV-22 platform software and hardware to support integration and test.			
FY 2020 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF200 / *CV-22*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Continue integration/testing of CV-22 SOF Common TF/TA SKR Operational Flight Program (OFP) software development and continues integration/testing of the CV-22 SOF Common TF/TA (Silent Knight) radar. ***FY 2021 Plans:*** Continues integration/testing of CV-22 SOF Common TF/TA SKR Operational Flight Program (OFP) software development and continues integration/testing of the CV-22 SOF Common TF/TA (Silent Knight) radar. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of $12.943 million is due to transitioning to final phases of developmental testing of CV-22 SOF Common TF/TA SKR.			
Title: CV-22 Block 20 Systems ***Description:*** Improves situational awareness, weapons, avionics, survivability, maneuverability, mission deployment, reliability, and maintainability of the CV-22 platform. Included within Block 20 is the Full-azimuth Defensive Weapon System (FDWS). FDWS provides the CV-22 with the capability to suppress threats in the forward hemisphere while the aircraft is in the critical phase of landing and takeoff at the mission objective. The FDWS integrates the fielded GAU-17 belly gun system currently employed on the USMC MV-22 aircraft with the SOF peculiar color helmet mounted display (CHMD) and cockpit firing controls for pilot operation. ***FY 2020 Plans:*** Continue engineering and integration/testing of Block 20 FDWS onto CV-22. Previous efforts leading up to FY20 were MFP-4 funded. ***FY 2021 Plans:*** Continues engineering integration/testing of Block 20 FDWS onto CV-22. Previous efforts leading up to FY20 were MFP-4 funded. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase of $1.635 million is due to increased engineering and integration/testing of the Block 20 FDWS onto CV-22.	-	0.494	2.129
Accomplishments/Planned Programs Subtotals	27.344	28.081	16.773

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/1000CV22: *CV-22 SOF Modification*	34.029	17.256	14.829	-	14.829	38.770	45.569	70.188	71.591	Continuing	Continuing
• PROC/V022A0: *Aircraft Procurement CV-22 (MYP)*	-	-	-	-	-	-	-	-	-	0.000	4,415.234

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command			Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• RDT&E1/0401318F: *RDT&E, USAF*	18.502	16.606	14.873	-	14.873	15.183	15.459	-	-	64.350	225.577
• RDT&E/0604262N: *V-22 RDT&E, N BA-05*	143.079	184.705	133.425	-	133.425	110.559	125.764	111.218	-	184.398	1,105.301

Remarks

D. Acquisition Strategy

When possible, rapid prototyping will be incorporated in the acquisition strategies below to develop, demonstrate, and evaluate residual operational capabilities.
The SKR was developed by USSOCOM to provide a SOF Common TF/TA capability for SOF aircraft. The SKR replaces the obsolescing APQ-186 TF/TA multimode radar on the CV-22. The acquisition strategy for the CV-22 SOF Common TF/TA SKR program is to procure radar units and radar software modifications through the USSOCOM SKR program management office, buy aircraft modification kits, and integrate SKR into CV-22 aircraft using a mixture of both sole source and competitive contracts.

The Block 20 Full-azimuth Defensive Weapon System (FDWS) will be based on modifications to the legacy Defensive Weapon System (DWS) currently fielded on USMC MV-22 aircraft and previously ground tested on a CV-22. These modifications will integrate the DWS with the CV-22 pilots color helmet mounted displays and cockpit controls to correct deficiencies/improve system effectiveness. They will be awarded on a competitive EMD contract for development.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command			Date: February 2020
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 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CV-22 SF Common TF/ TA Silent Knight Radar (SKR) - Operational Flight Program (OFP) Development	C/CPFF	Various : Various	5.417	13.985	Nov 2018	16.123	Nov 2019	7.720	Nov 2020	-		7.720	Continuing	Continuing	-
CV-22 SF Common TF/TA SKR- Integration	C/CPFF	Various : Various	5.774	12.434	Feb 2019	9.082	Feb 2020	3.982	Nov 2020	-		3.982	Continuing	Continuing	-
CV-22 Block 20 Systems	Various	Various : Various	1.057	-		0.494	Feb 2020	2.129	Nov 2020	-		2.129	Continuing	Continuing	-
		Subtotal	12.248	26.419		25.699		13.831		-		13.831	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CV-22 SF Common TF/ TA (Silent Knight) Radar - OFP	C/CPFF	Various : Various	1.241	0.404	Nov 2018	1.132	Nov 2019	2.412	Nov 2020	-		2.412	Continuing	Continuing	-
CV-22 SF Common TF/ TA (Silent Knight) Radar - Integration	C/CPFF	Various : Various	0.511	0.521	Feb 2019	1.250	Feb 2020	0.530	Nov 2020	-		0.530	Continuing	Continuing	-
Prior Year	Various	Various : Various	1.936	-		-		-		-		-	0.000	1.936	-
		Subtotal	3.688	0.925		2.382		2.942		-		2.942	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.936	27.344		28.081		16.773		-		16.773	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF200 / *CV-22*

CV-22
PEO-Managed Schedule

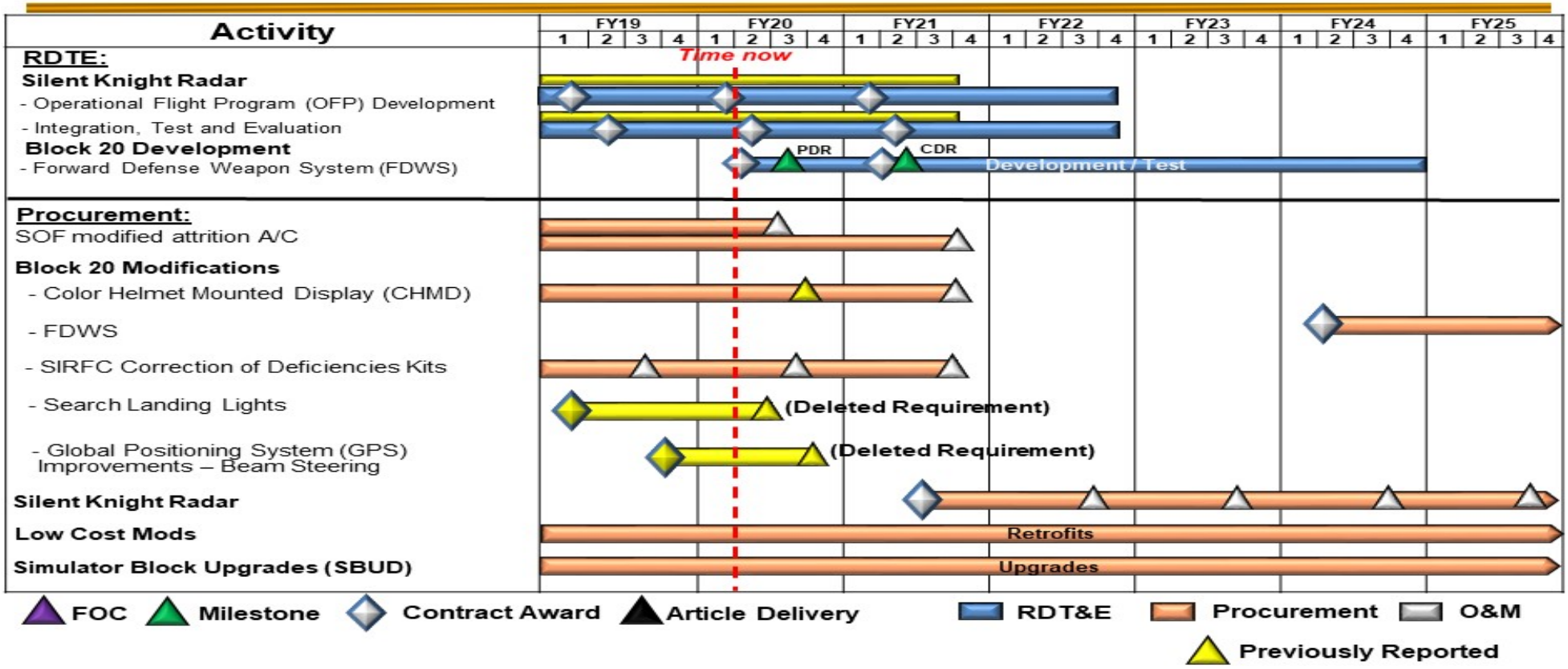


Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF200 / *CV-22*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CV-22				
SOF Common TF/TA (Silent Knight) Radar - OFP Development	1	2019	4	2022
SOF Common TF/TA (Silent Knight) Radar - Radar Integration, Test & Evaluation	1	2019	4	2022
Block 20 Full-azimuth Defensive Weapon System (FDWS) Development/Test	2	2020	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command			Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF300 / *Armed Overwatch/Targeting*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
SF300: *Armed Overwatch/ Targeting*	-	0.000	0.000	5.000	-	5.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Armed Overwatch provides Special Operations Forces (SOF) deployable and sustainable aircraft systems fulfilling Close Air Support, Precision Strike, and SOF Intelligence, Surveillance & Reconnaissance (ISR) requirements in austere and permissive environments for the Countering-Violent Extremist Organizations mission. Armed Overwatch missions include: Armed ISR, Strike Coordination & Reconnaissance, and Airborne Forward Air Control. The funding in this project supports development, integration, prototype demonstrations, testing of SOF-unique capabilities and Air Worthiness Release efforts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Armed Overwatch/Targeting	-	-	5.000
Description: The funding in this project supports development, integration, prototype demonstrations, testing of SOF-unique capabilities and Air Worthiness Release efforts. ***FY 2021 Plans:*** Initiates and completes development, integration, prototype demonstrations, testing of SOF-unique capabilities and Air Worthiness Release efforts. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase of $5.000 million provided as a departmental directed requirement from the United States Air Force (Program Element 0207100F transfer).			
Accomplishments/Planned Programs Subtotals	-	-	5.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/0201ARMOWT: *Armed Overwatch/Targeting*	-	-	101.000	-	101.000	170.000	204.000	208.000	210.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Armed Overwatch/Targeting: These technologies will be pursued via rapid prototyping and/or rapid fielding, when appropriate, to industry partners for flight demonstrations in FY21. The demonstrations will inform a best value decision for follow on production contract.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) SF300 / *Armed Overwatch/Targeting*	

Product Development ($ in Millions)

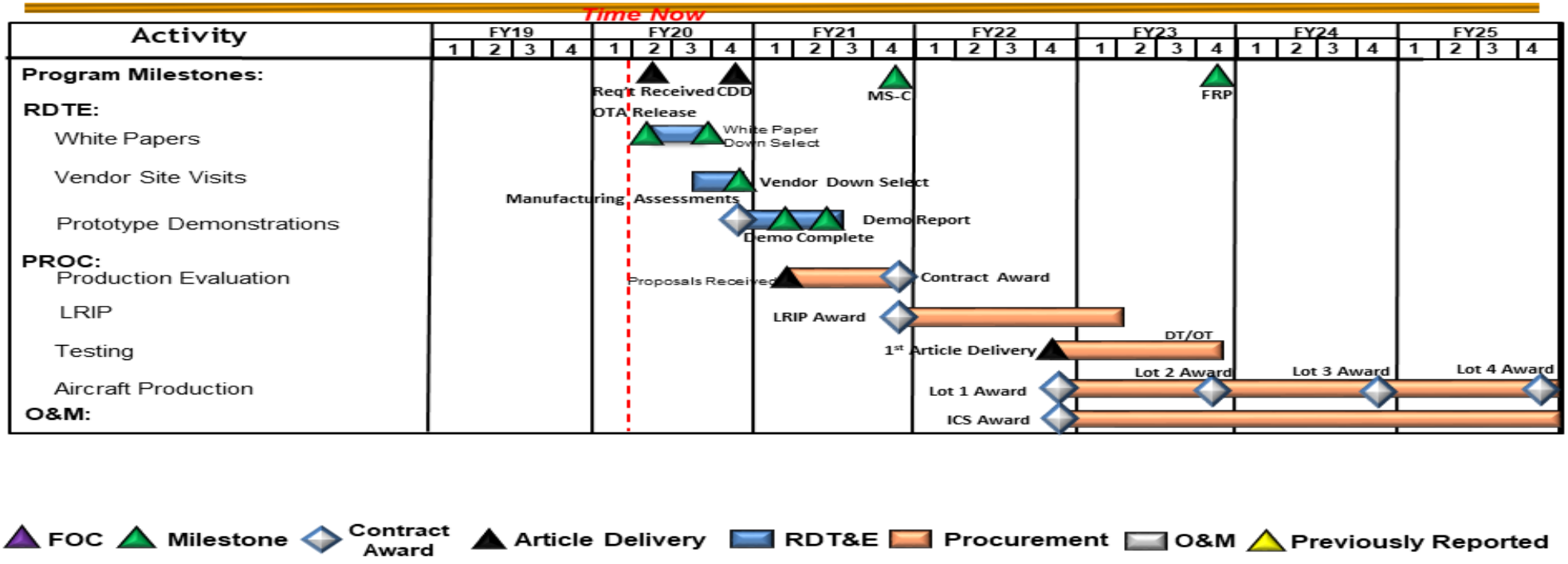
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Armed Overwatch/ Targeting: Prototype Testing/Demonstration	C/FFP	Various : Various	-	-		-		5.000	Oct 2020	-		5.000	Continuing	Continuing	-
		Subtotal	-	-		-		5.000		-		5.000	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		0.000		5.000		-		5.000	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF300 / *Armed Overwatch/Targeting*

Armed Overwatch/Targeting
PEO-Managed Schedule



FOC | Milestone | Contract Award | Article Delivery | RDT&E | Procurement | O&M | Previously Reported

Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF300 / *Armed Overwatch/Targeting*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Armed Overwatch/Targeting				
Prototype Testing/Demonstration	1	2021	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command			Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S750: *Mission Training and Preparation Systems*	34.573	7.251	8.595	9.630	-	9.630	9.548	9.747	9.972	10.172	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 2019	FY 2020	FY 2021
Title: Special Operations Mission Planning and Execution (SOMPE)	7.251	8.595	9.630
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 (UAS) 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 (TSOC), Joint Special Operations Task Forces, Joint Special Operations Aviation Components, SOF warfighters, and SOF warfighter platforms.			
FY 2020 Plans: Continue development of software applications to address increased 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. Continue updates to mission planning, data transfer, and performance software. Continue development of software applications for smaller mobile computer devices (tablets, smart phones, etc).			
FY 2021 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021
Continues development of software applications to address increased 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 updates to mission planning, data transfer, and performance software. Continues development of software applications for smaller mobile computer devices (tablets, smart phones, etc). ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase of $1.035 million is due to product development and integration of new software capabilities within the Mission Planning and Execution Application.			
Accomplishments/Planned Programs Subtotals	7.251	8.595	9.630

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command		Date: February 2020
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 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 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	27.314	6.073	Jan 2019	7.032	Jan 2020	7.880	Jan 2021	-		7.880	Continuing	Continuing	-
		Subtotal	27.314	6.073		7.032		7.880		-		7.880	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOMPE Software	MIPR	Special Operations Mission Planning Office : Fort Eustis, VA	2.326	0.371	Feb 2019	0.388	Feb 2020	0.434	Feb 2021	-		0.434	Continuing	Continuing	-
		Subtotal	2.326	0.371		0.388		0.434		-		0.434	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOMPE Software	C/CPFF	Wyle-CAS : Huntsville, AL	4.933	0.807	Jan 2019	1.175	Jan 2020	1.316	Jan 2021	-		1.316	Continuing	Continuing	-
		Subtotal	4.933	0.807		1.175		1.316		-		1.316	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	34.573	7.251		8.595		9.630		-		9.630	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S750 / *Mission Training and Preparation Systems*

Special Operations
Mission Planning & Execution (SOMPE)
PEO Managed Schedule

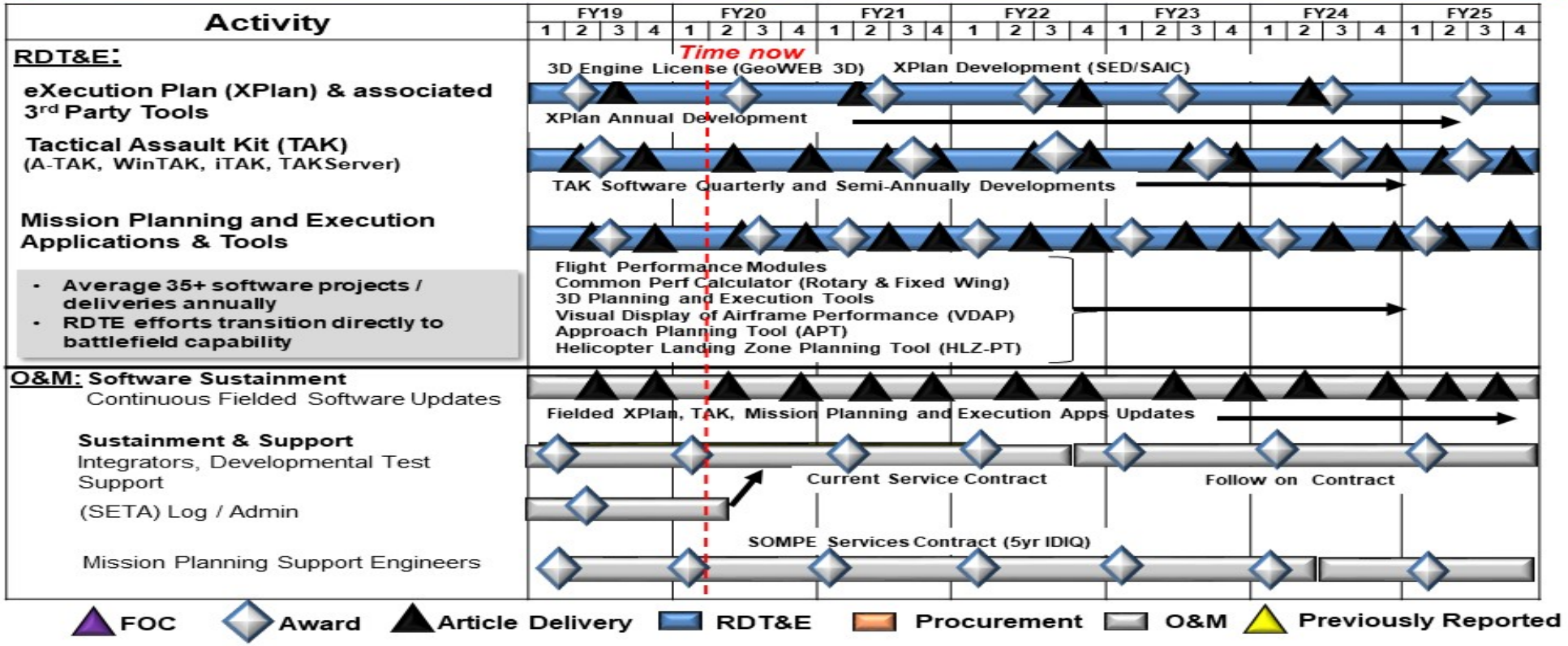


Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S750 / *Mission Training and Preparation Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Special Operations Mission Planning and Execution (SOMPE)				
eXecution Plan (XPlan) & Associated 3rd Part Tools	1	2019	4	2025
Tactical Assault Kit (TAK)	1	2019	4	2025
Mission Planning and Execution Applications & Tools	1	2019	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command			Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
S875: *AC/MC-130J*	47.277	16.480	29.391	55.083	-	55.083	53.742	54.797	56.069	57.182	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 Precision Strike Package (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 with SOF mission modifications provide clandestine single or multi-ship low-level aerial refueling for special operations helicopters and CV-22 aircraft; conduct airdrops of leaflets, 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. Incremental upgrade and agile software development approaches will be used to integrate SOF capabilities onto the aircraft and training systems. SOF capabilities include, but are not limited to: Airborne Mission Networking (AbMN), data fusion, threat detection and avoidance, integrated Terrain Following/Terrain Avoidance (TF/TA), 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 2019	FY 2020	FY 2021
Title: MC-130J Airborne Mission Networking (AbMN)	4.169	2.688	2.688
Description: AbMN provides aircrew and mission personnel aboard MC-130J aircraft with the ability to 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 (LOS)/Beyond Line-of-Sight (BLOS) voice/data communications, friendly force identification, mission tracking, threat identification, full-motion video, collaboration, chat, e-mail, integrated tactical map and data links. AbMN enables SOF 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 2020 Plans: Complete contractor ground testing. Begin developmental, operational, and interoperability testing on the MC-130J along with the SOF Common Terrain Following/Terrain Avoidance (TF/TA) radar, special missions systems, and electronic warfare systems.			
FY 2021 Plans: Completes developmental, operational, and interoperability testing on the MC-130J along with the SOF Common Terrain Following/Terrain Avoidance (TF/TA) radar, special missions systems, and electronic warfare systems.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021
None.			
Title: Integrated Tactical Mission Systems (ITMS)	12.311	26.703	52.395
Description: The ITMS program increases operational crew performance and aircraft survivability by integrating the MC-130J green aircraft and multiple SOF mission systems as an interoperable system-of-systems. Automated software capabilities will be developed, integrated, and tested with SOF-peculiar and green aircraft flight information, displays, and controls through the Special Mission Systems (SMS) suite. By increasing system-of-systems data interoperability through an Open Mission Systems (OMS) compliant Modular Open System Architecture (MOSA), an agile software development infrastructure will be employed to integrate multiple subsystems and continuously deliver automated software capabilities. Capabilities include, but are not limited to; automated route replanning, tactical flight management, integrated aircraft defensive systems, defensive countermeasures, and embedded training. The NextGen Special Mission Processor (SMP) resolves current diminishing manufacturing sources issues with a MOSA compliant design to perform central processing for ITMS software. ITMS enables dynamic operations with integrated real-time information, automation, and decision making data for safe TF/TA flight and mission execution (MC-130J aircraft) and seamless employment of the PSP (AC-130J aircraft). ***FY 2020 Plans:*** Continue capability prototype and demonstration, infrastructure development, system-of-systems integration, tactical map enhancements, TF/TA integration, and increased situational awareness capabilities. Continue OMS development for data and communications interoperability risk reduction. Complete the NextGen SMP prototype demonstration and continue development to replace the legacy SMP. Continue development of SMS capabilities required for ITMS to include, but not limited to; data fusion, threat correlation, and applications of machine learning and artificial intelligence. Begin Tactical Flight Mission Systems (TFMS), Defensive Countermeasures (DCM), auto route replanner integration and test on the MC-130J. ***FY 2021 Plans:*** Continues capability prototype and demonstration, infrastructure development, system-of-systems integration, tactical map enhancements, TF/TA integration, and increased situational awareness capabilities. Continues OMS development for data and communications interoperability. Continues development of SMS capabilities required for ITMS to include, but not limited to; data fusion, threat correlation, and applications of machine learning and artificial intelligence. Continues TFMS, DCM, auto route replanner integration and test on the MC-130J. Begins capability replication, performance, and test on the AC-130J. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase of $25.692 million due to increased development focused on interoperability of MC-130J Common TF/TA Radar, Airborne Mission Network, tactical flight management, defensive countermeasures, and refresh of the MC-130J Software Integration Lab to meet ITMS technical testing requirements.			
Accomplishments/Planned Programs Subtotals	16.480	29.391	55.083

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/2012C130J: *AC/MC-130J*	163.181	143.232	163.914	-	163.914	213.649	296.535	322.669	333.789	Continuing	Continuing
• PROC/1202PSP: *Precision Strike Package*	229.674	232.930	243.111	-	243.111	167.714	141.180	134.636	137.334	Continuing	Continuing

Remarks

D. Acquisition Strategy

As a core strategy, rapid prototyping has been incorporated in the acquisition strategies below to develop, demonstrate and evaluate residual operational capabilities.

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 (LRIP) followed by a competitive Firm-Fixed Price (FFP) contract for production, aircraft integration, and fielding.

ITMS: Develop virtual environment to enable collaborative integration of modular software services procured through competitive, sole source contracts, and use of open mission system compliant standards for hardware and software architecture, software, services, and future subsystems.

The U.S. Air Force procures the basic AC-130J aircraft under the 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command			Date: February 2020
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 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MC-130J Airborne Mission Networking (AbMN)	C/CPFF	Sierra Nevada Corporation : Centennial, CO	15.922	3.441	Nov 2018	1.708	Dec 2019	1.264	Dec 2020	-		1.264	Continuing	Continuing	-
Tactical Flight Management, Auto Route Replanner, Defensive Countermeasures (DCM) and MC-130J Systems Integration	C/CPFF	Lockheed Martin Aeronautics : Marietta	-	1.500	Jul 2019	4.252	Apr 2020	10.870	Nov 2020	-		10.870	Continuing	Continuing	-
Systems Interoperability & Tactical Map enhancements	C/Various	Sierra Nevada Corporation : Nevada	29.906	5.500	May 2019	6.157	Nov 2019	5.436	Dec 2020	-		5.436	Continuing	Continuing	-
Open Mission System (OMS) Capabilities, Integration & Demonstration	C/Various	Various : Various	-	1.511	Aug 2019	4.732	Nov 2019	3.624	Nov 2020	-		3.624	Continuing	Continuing	-
NextGen SMP Demonstration, Development, Integration and Test	C/Various	Various : Various	-	3.800	Aug 2019	4.419	Nov 2019	1.200	Dec 2020	-		1.200	Continuing	Continuing	-
Tactical Flight Management, Auto Route Replanner, DCM and AC-130J Systems Integration	C/Various	Various : Various	-	-		-		9.670	Dec 2020	-		9.670	Continuing	Continuing	-
AC/MC-130J OMS Software Development	C/Various	Various : Various	-	-		-		7.034	Jan 2021	-		7.034	Continuing	Continuing	-
		Subtotal	45.828	15.752		21.268		39.098		-		39.098	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Tactical Mission System (ITMS) - Support	C/Various	Various : Various	-	-		3.200	Apr 2020	2.718	Mar 2021	-		2.718	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) S875 / *AC/MC-130J*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		3.200		2.718		-		2.718	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AC-130J	C/Various	Lockheed Martin : Atlanta, GA	0.808	-		-		-		-		-	0.000	0.808	-
MC-130J AbMN Integration and Test	MIPR	USSOCOM Detachment 1 Joint Test Interoperability Command : Eglin AFB, FL	0.641	0.728	Nov 2018	0.980	Dec 2019	1.424	Dec 2020	-		1.424	Continuing	Continuing	-
ITMS - Integration and Test	Sub Allot	USSOCOM Detachment 1 : Eglin AFB, FL	-	-		3.943	Nov 2019	11.843	Jan 2021	-		11.843	Continuing	Continuing	-
		Subtotal	1.449	0.728		4.923		13.267		-		13.267	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	47.277	16.480		29.391		55.083		-		55.083	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

MC-130J Airborne Mission Networking (AbMN) PEO Managed Schedule

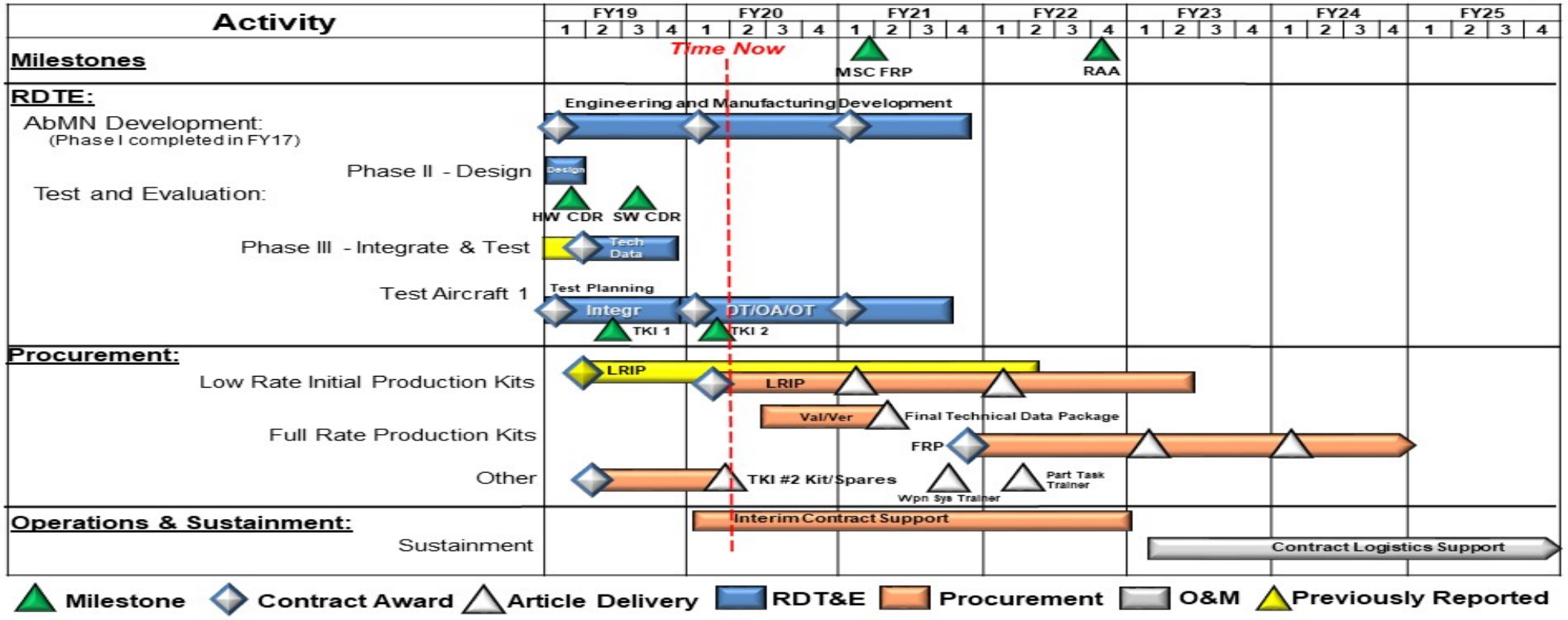


Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

Common AC/MC-130J Mission Systems PEO Managed Schedule

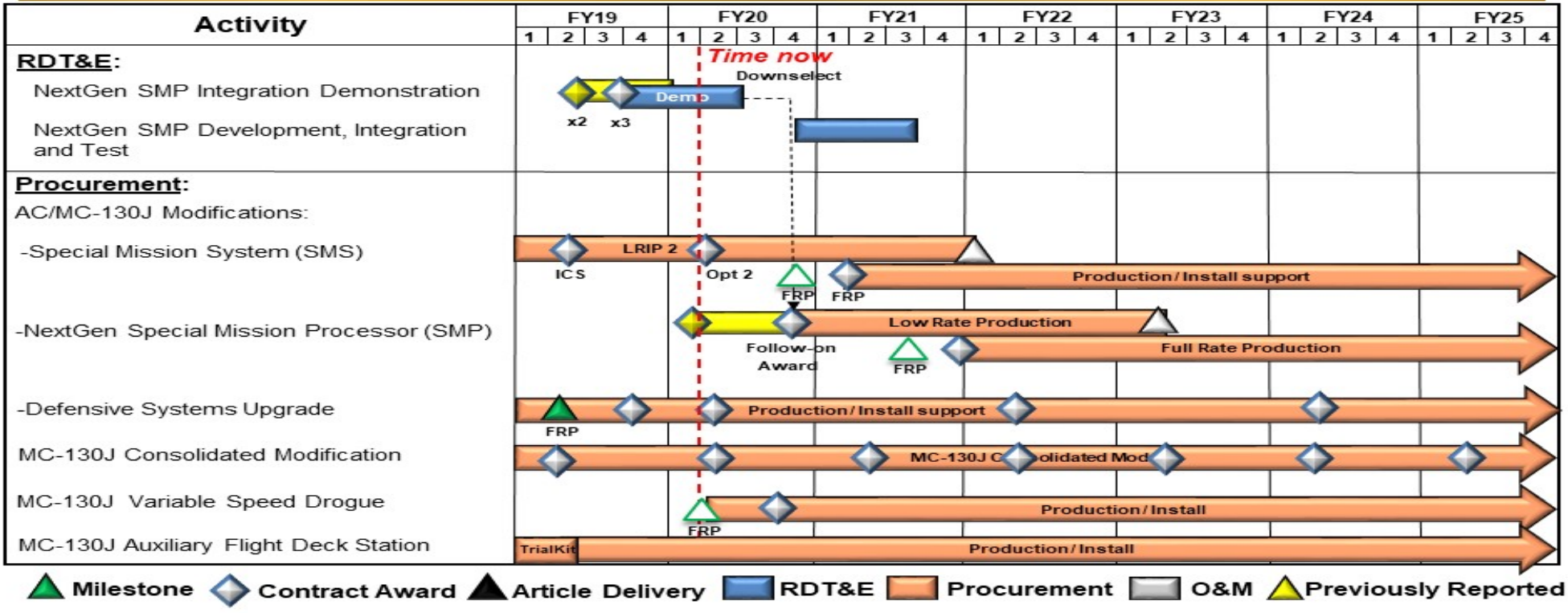


Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

Integrated Tactical Mission Systems (ITMS)
PEO Managed Schedule

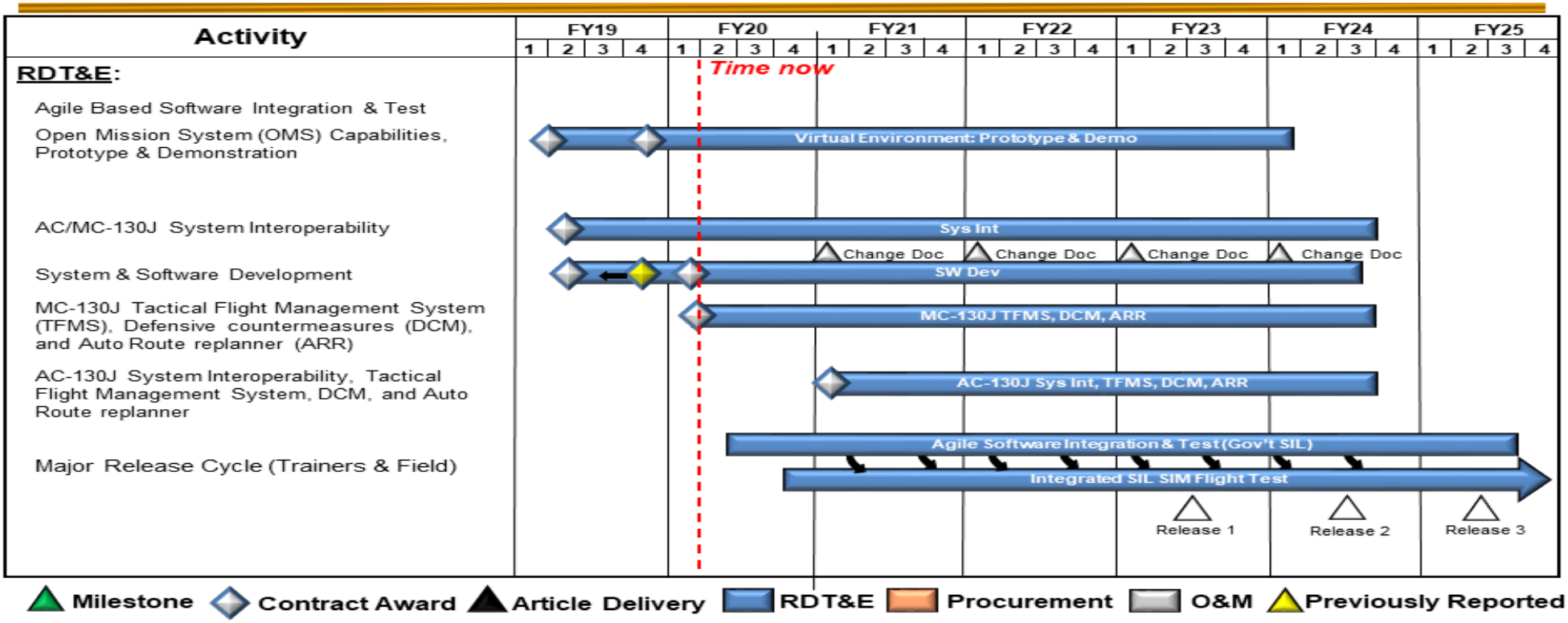


Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MC-130J Airborne Mission Networking (AbMN)				
Engineering and Manufacturing Development	1	2019	4	2021
Phase II Design	1	2019	2	2019
Phase III Integration & Test (Includes Tech Data, Aircraft Integration, & Testing)	2	2019	4	2019
Integrated Tactical Mission Systems (ITMS) Agile Based Software Integration & Test				
Virtual Environment Prototype and Demonstration	1	2019	1	2024
Next Generation Special Mission System Integration Demo	3	2019	3	2020
Agile Software Integration and Test	2	2020	3	2025
Integrated SIL SIM Flight Test	4	2020	4	2025
Tactical Flight Management Systems Development	1	2020	3	2024
Defensive Countermeasures	1	2021	3	2024

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command			Date: February 2020
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COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
D615: *Rotary Wing Aviation*	251.118	18.858	47.768	41.895	-	41.895	34.459	30.721	30.947	31.523	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development, rapid prototyping, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique rotary wing aviation and training requirements. This project includes modifications to Aircraft Survivability Equipment (ASE) avionics and weapons systems to counter rapidly emerging threats, address cyber security, improve lethality and enhance 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 operations 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: A/MH-6M Block 3.0 Upgrade	3.008	2.688	2.783
Description: This effort funds the development and testing of Special Operations Forces Peculiar (SOF-P) equipment and modifications for the A/MH-6M. It will include software development and testing to integrate new capability, development and qualification of new hardware, and test and evaluation of new weapons, sensors, communications systems, or aircraft modifications that increase systems performance.			
FY 2020 Plans: Complete Airworthiness and Flight Characteristics (A&FC) testing efforts, Electromagnetic Environmental Effects (E3) testing, and radio communications performance testing.			
FY 2021 Plans: Begins software updates to incorporate communications upgrades and/or crypto modernization, follow-on testing on Block 3 components to improve sustainability, improved tail rotor blade development and test, improved main rotor transmission study, improved main rotor study, test and evaluate anti-jamming antennas, and weapons system test.			
FY 2020 to FY 2021 Increase/Decrease Statement: Increase of $0.095 million is due to crypto modernization mandate.			
Title: MH-60M Modifications and Upgrades	2.608	6.533	3.428
Description: Develops technologies to improve safety and performance of the MH-60 while decreasing operational costs. Efforts include, but are not limited to, MH-60 engineering changes and product improvements to SOF-P equipment, munitions utilized for testing, modifications to ASE and weapons systems designed to counter rapidly emerging threats, improve lethality, and			

Exhibit R-2A, RDT&E Project Justification: PB 2021 United States Special Operations Command		Date: February 2020
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
enhance aircraft self-protection in the multi-domain operations (MDO) environment and against near peer threats. The MH-60 Block Upgrades provide the development, integrations, and qualification efforts for the MH-60 helicopter to include flight test support, engineering analysis, documentation, and airworthiness substantiation. ***FY 2020 Plans:*** Complete Upturned Exhaust System (UES) II qualification and testing, 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, such as the Joint Air-to-Ground Missile. ***FY 2021 Plans:*** Continue testing of Joint Air-to-Ground Missile software, payload restoration efforts, and other technologies to improve safety and decrease operational costs to aircraft survivability equipment, weapons systems improvement, and munitions. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of $3.105 million due to the completion of the UES II qualification and testing.			
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-P avionics with the unique skills of the SOF aviator. ***FY 2020 Plans:*** Begin airworthiness release support efforts. ***FY 2021 Plans:*** Complete airworthiness release documentation for fielding. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of $0.292 million due to a reduction in post-test air worthiness/engineering activities.	3.580	0.871	0.579
Title: Future Vertical Lift (FVL) ***Description:*** Provides for the development of USSOCOM platform capabilities that address SOF-unique requirements. This family of systems significantly increases 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 FVL aircraft by	0.922	1.208	3.324

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
injecting USSOCOM requirements and equities into the initial development and design efforts to minimize SOF-P modifications to the common aircraft. ***FY 2020 Plans:*** Provide engineering and design work to ensure SOF-unique requirements are incorporated in the baseline Army aircraft. ***FY 2021 Plans:*** Continues to provide guidance and infrastructure necessary for FVL to implement a mission systems architecture that enables the integration of SOF capabilities into the aircraft. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase of $2.116 million is due to increased engineering and design work of SOF-unique requirements.			
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, and flare testing for emerging threats. ***FY 2020 Plans:*** Begin market research for an infrared exhaust suppressor for the A/MH-6 aircraft. Continue advanced flare testing. Complete qualification testing of missile warning and lightweight IRCM systems. ***FY 2021 Plans:*** Continues advanced flare testing. Completes development of and begins qualification testing of IR exhaust suppressor for the A/MH-6 aircraft. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of $2.800 million is due to completion of qualification testing of a lightweight IRCM system.	1.763	3.425	0.625
Title: MH-47 Modifications and Upgrades ***Description:*** Develops technologies to improve the performance and safety of the MH-47G and decrease operational costs. Efforts include, but are not limited to, the Active Parallel Actuator Subsystem (APAS). This sub-project also includes modifications to ASE and weapons systems to counter rapidly emerging threats and enhance aircraft self-protection. ***FY 2020 Plans:***	3.178	8.906	8.455

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Continue APAS development, including integration with MH-47G subsystems, such as Common Avionics Architecture System. Complete APAS Critical Design Review. ***FY 2021 Plans:*** Continues APAS development, including integration with MH-47G subsystems, such as Common Avionics Architecture System. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of $0.451 million is due to planned completion of APAS Critical Design Review.			
Title: Mission Processor Upgrades (MPU) ***Description:*** Provides for non-recurring engineering (NRE), systems engineering/testing, and future aircraft architecture studies that support 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 (CAAS). This MPU provides the processing and memory resources required to incorporate the following functions into the General Purpose Processing Unit (GPPU): (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, night conditions, and next generation ARSOA cockpit. ***FY 2020 Plans:*** Continue exploration of the next generation ARSOA cockpit, to include Video Processing Module (VPM) development and testing. ***FY 2021 Plans:*** Continue exploration of the next generation ARSOA cockpit, to include architectures studies/development and individual enabling/ enhancing technologies ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Decrease of $0.016 million due to anticipated work required to be completed in support of the next generation ARSOA cockpit in FY 2021.	0.362	0.604	0.588
Title: Tactical (Airborne) Mission Networking (TMN) ***Description:*** Provides for continued development of systems (software and hardware) to enable the aircraft to effectively adapt and overcome the challenges of the highly contested and congested RF environment. This effort will enable the aircrew to use advanced radio waveforms and communications equipment that can survive and thrive in contested and congested radio frequency environments. Upgrading antennas, processors, radios and other enabling communications equipment will be a persistent requirement as the RF environment becomes increasingly more complex. Additionally, the Army intends to upgrade its	-	-	3.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
networks every two years – so this funding will ensure Special Operations Aircraft can adapt and keep pace with both SOF and conventional forces' communications and networking improvements/upgrades. ***FY 2021 Plans:*** Begins to develop software and hardware to rapidly incorporate advanced waveforms, advanced communications, and networking hardware onto the ARSOA aircraft. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase of $3.000 million to support development work on ARSOA aircraft.			
Title: Aircraft Survivability Equipment (ASE) Radio Frequency Countermeasures (RFCM) Upgrades ***Description:*** Develops, integrates, and tests critical active and passive SOF-P 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. These threat systems are evolving technically at an unprecedented rate, requiring rapid countermeasure 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, and associated qualification testing. P3I upgrades may include, but are not limited to, expansion of loadsets 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 2020 Plans:*** Continue development of new systems, P3I/upgrades of fielded survivability equipment, and continues development of countermeasures. Complete RF improvements test and evaluation. Additional details can be provided under separate cover. ***FY 2021 Plans:*** Continues development of new systems, P3I/upgrades of fielded survivability equipment, and continues development of countermeasures. Additional details can be provided under separate cover. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase of $0.080 million supports development of prototypes and integration.	3.437	15.533	15.613
Title: Improved Rotary Wing Electro-Optical Sensor (IRES) ***Description:*** The IRES program, formally known as Next Generation FLIR, is a Commercial Off The Shelf (COTS)/non-developmental lighter-weight Electro-Optical Sensor System (EOSS) needed to reduce aircraft weight and mitigate obsolescence of the currently fielded Q2 and Q3 FLIR systems on the MH-47, MH-60, and A/MH-6 aircraft. Both assault and attack turreted	-	-	3.500

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
systems will include multi-spectrum infrared, day TV, laser spot tracker, laser range finder, and laser illuminator with the ability to fuse camera images. The attack turrets will also include a laser designator for targeting capabilities. ***FY 2021 Plans:*** Begins software changes/integration into A/MH-6, MH-47G, and MH-60M aircraft, and perform combined development and operational testing. Additional details can be provided under separate cover. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase of $3.500 million supports the integration of software into ARSOA aircraft.			
Accomplishments/Planned Programs Subtotals	18.858	39.768	41.895

	FY 2019	FY 2020
Congressional Add: Future Vertical Lift (FVL)	-	8.000
FY 2020 Plans: Provides engineering and design work to ensure SOF-unique requirements are incorporated in the baseline Army aircraft.		
Congressional Adds Subtotals	-	8.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• PROC/0201RWUPGR: *Rotary Wing Upgrades and Sustainment*	148.907	172.020	211.041	-	211.041	230.870	247.497	267.854	258.750	Continuing	Continuing
• 0201MH60: *MH-60 Blackhawk*	27.600	25.264	-	-	-	-	-	-	-	981.513	981.513
• 0601MH47: *MH-47 Chinook*	157.892	206.093	135.482	-	135.482	132.888	135.644	138.951	141.728	Continuing	Continuing

Remarks

D. Acquisition Strategy

• A/MH-6M Block 3.0 Upgrade comprises three distinct efforts: integrated airframe, Block 3 performance kits and avionics upgrades. 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 (COTS) to the extent possible and will be competitively selected. Airframe modification and integration work will be conducted via a contract with the Special Operations Forces Support Activity (SOFSA).

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• MH-60M Modifications and Upgrades supports systems integration and qualification efforts on MH-60M helicopters. The Mods and Upgrades are executed via various acquisition vehicles and includes, but are not limited to, government and contractor flight test support, engineering analysis, documentation, and airworthiness substantiation. Airframe modification and integration work will be conducted via a contract with the Special Operations Forces Support Activity (SOFSA).

• DVE integrates and qualifies a solution to address a safety of flight issue while flying in DVE. A competitive source selection process was conducted, resulting in down-selection of one vendor 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. Will begin evaluation and qualification of an infrared exhaust suppressor for the A/MH-6M aircraft, and continue flare testing for emerging threats.

• 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. The upgrades and modifications are executed via various acquisition vehicles and consist mostly of government and contractor executed integration, testing, and qualification efforts with some analytical engineering services to be completed. Post-production block modifications are accomplished via a contract with the Special Operations Forces Support Activity (SOFSA).

• 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 Original Equipment Manufacturers (OEM), while the future cockpit architecture studies will be competitively awarded.

• Tactical (Airborne) Mission Networking provides for future communications and networking capability exploration and solution development that will ensure ARSOA platforms can communicate through voice and data in a highly contested and congested RF environment. Additionally, it will ensure ARSOA aircraft can maintain interoperability with the SOF and conventional ground forces’ plan of rapidly and continually updating their communications and networking infrastructure. Non-developmental communication equipment will be procured through existing DOD contracts. Aircraft integration will be through existing aircraft modification contracts.

• ASE RFCM Upgrades develops and tests both new systems and pre-planned product improvements/upgrades of fielded aircraft survivability systems and countermeasures. 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.

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• IRES integrates non-developmental multi-spectral electro-optical sensor systems (EOSS) onto SOF Rotary Wing aircraft to address legacy system obsolescence, reduce aircraft weight, and provide improved system performance. To the maximum extent possible, systems will be procured through existing USSOCOM and Services contracts. Aircraft integration will be through existing aircraft modification contracts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command			Date: February 2020
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Degraded Visual Environment (DVE)	C/Various	PM TAPO : Fort Eustis, VA	66.168	3.580	Feb 2019	0.871	Apr 2020	0.579	Apr 2021	-		0.579	Continuing	Continuing	-
MH-47 Modifications and Upgrades	C/Various	PM TAPO : Fort Eustis, VA	38.753	3.178	Dec 2018	8.906	Nov 2019	8.455	Nov 2020	-		8.455	Continuing	Continuing	-
Tactical (Airborne) Mission Networking (TMN)	C/Various	PM TAPO : Fort Eustis, VA	-	-		-		3.000	Mar 2021	-		3.000	Continuing	Continuing	-
Aircraft Survivability Equipment (ASE) Radio Frequency Countermeasures (RFCM) Upgrades	C/Various	PM TAPO : Fort Eustis, VA	13.002	3.437	Aug 2019	15.533	Mar 2020	15.613	Mar 2021	-		15.613	Continuing	Continuing	-
Improved Rotary Wing Electro-Optical Sensor (IRES), formerly known as Next Generation Forward Looking Infrared (NGFLR)	C/Various	PM TAPO : Fort Eustis, VA	-	-		-		3.500	Dec 2020	-		3.500	Continuing	Continuing	-
Prior Years Funding	C/Various	PM MELB : Fort Eustis, VA	59.820	-		-		-		-		-	0.000	59.820	-
		Subtotal	177.743	10.195		25.310		31.147		-		31.147	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Future Vertical Lift (FVL)	C/Various	PM TAPO : Fort Eustis, VA	3.131	0.922	Feb 2019	1.208	Feb 2020	3.324	Feb 2021	-		3.324	Continuing	Continuing	-
FVL Congressional Add	C/Various	PM TAPO : Fort Eustis, VA	-	-		8.000	Feb 2020	-		-		-	0.000	8.000	-
		Subtotal	3.131	0.922		9.208		3.324		-		3.324	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 United States Special Operations Command		Date: February 2020
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 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	29.028	3.008	Jan 2019	2.688	Jan 2020	2.783	Jan 2021	-		2.783	Continuing	Continuing	-
MH-60M Modification and Upgrades	C/Various	PM TAPO : Fort Eustis, VA	4.969	2.608	Mar 2019	6.533	Jul 2020	3.428	Mar 2021	-		3.428	Continuing	Continuing	-
Infrared Countermeasures Integration and Testing	C/Various	PM TAPO : Fort Eustis, VA	10.900	1.763	Apr 2019	3.425	Feb 2020	0.625	Feb 2021	-		0.625	Continuing	Continuing	-
Mission Processor Upgrades	C/Various	PM TAPO : Fort Eustis, VA	0.500	0.362	Aug 2019	0.604	Apr 2020	0.588	Apr 2021	-		0.588	Continuing	Continuing	-
Prior Years Funding	C/Various	Various : Various	24.847	-		-		-		-		-	0.000	24.847	-
		Subtotal	70.244	7.741		13.250		7.424		-		7.424	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	251.118	18.858		47.768		41.895		-		41.895	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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A/MH-6 Block 3
PEO-Managed Schedule

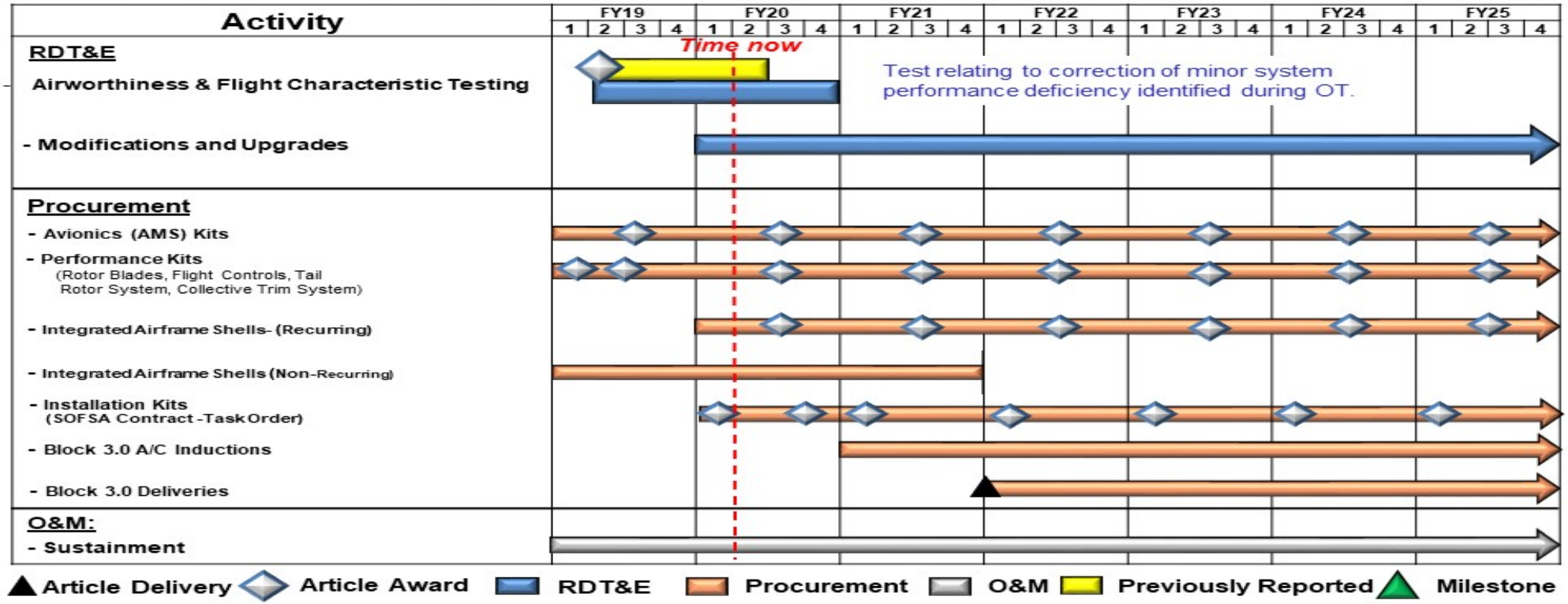

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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MH-60M Program
PEO-Managed Schedule

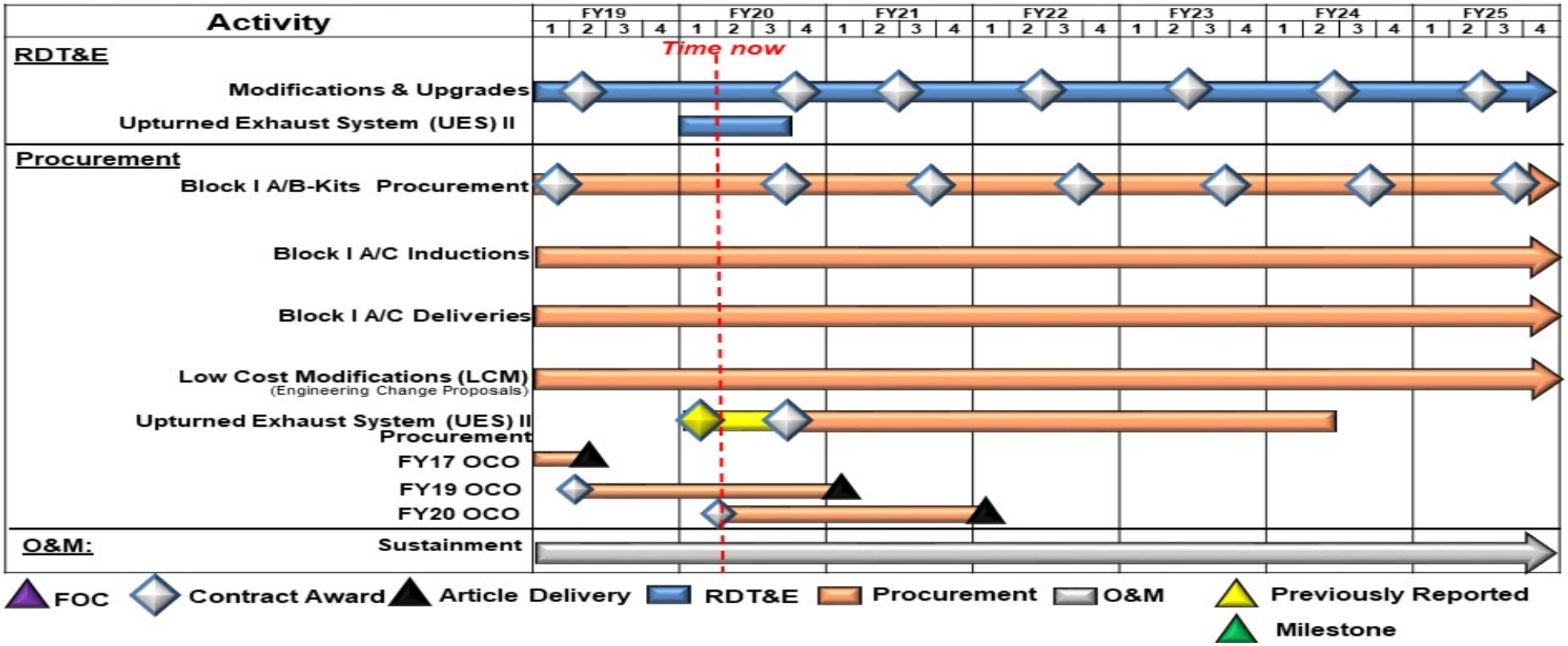

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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Degraded Visual Environment (DVE) PEO-Managed Schedule

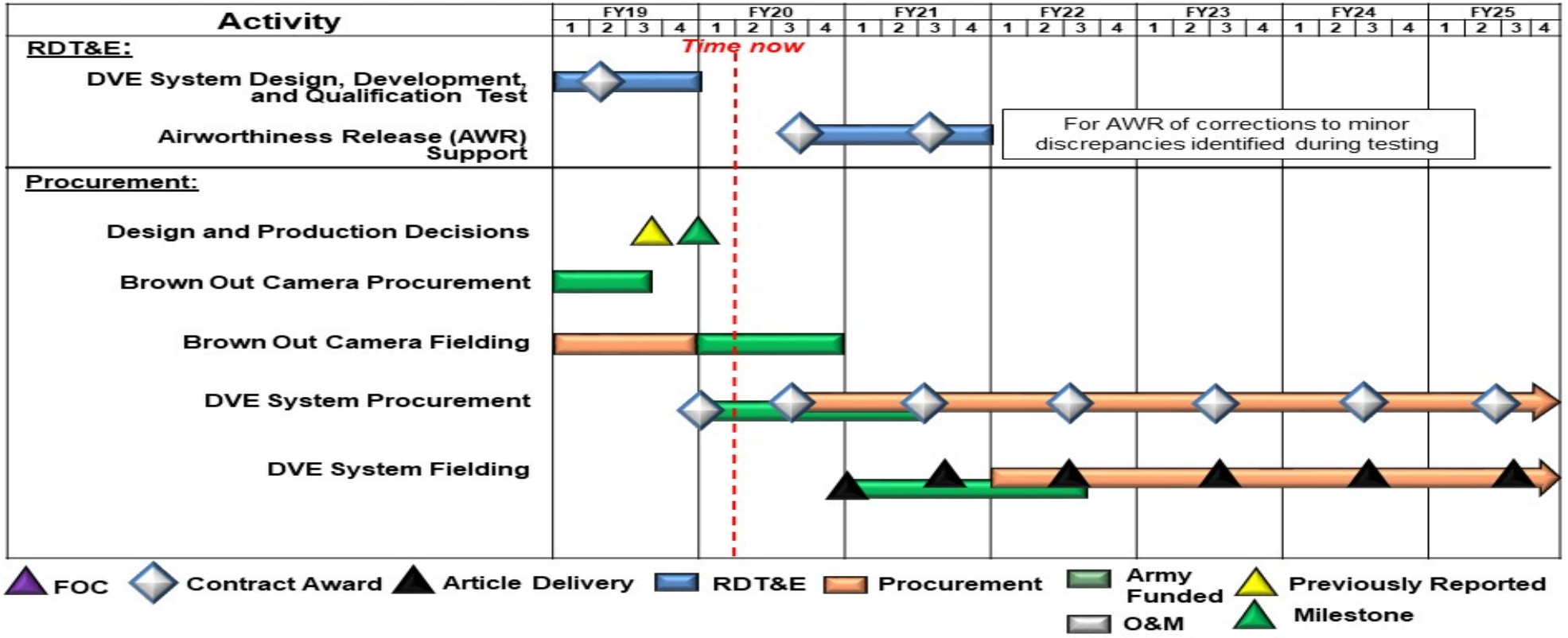

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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Future Vertical Lift (FVL) PEO-Managed Schedule

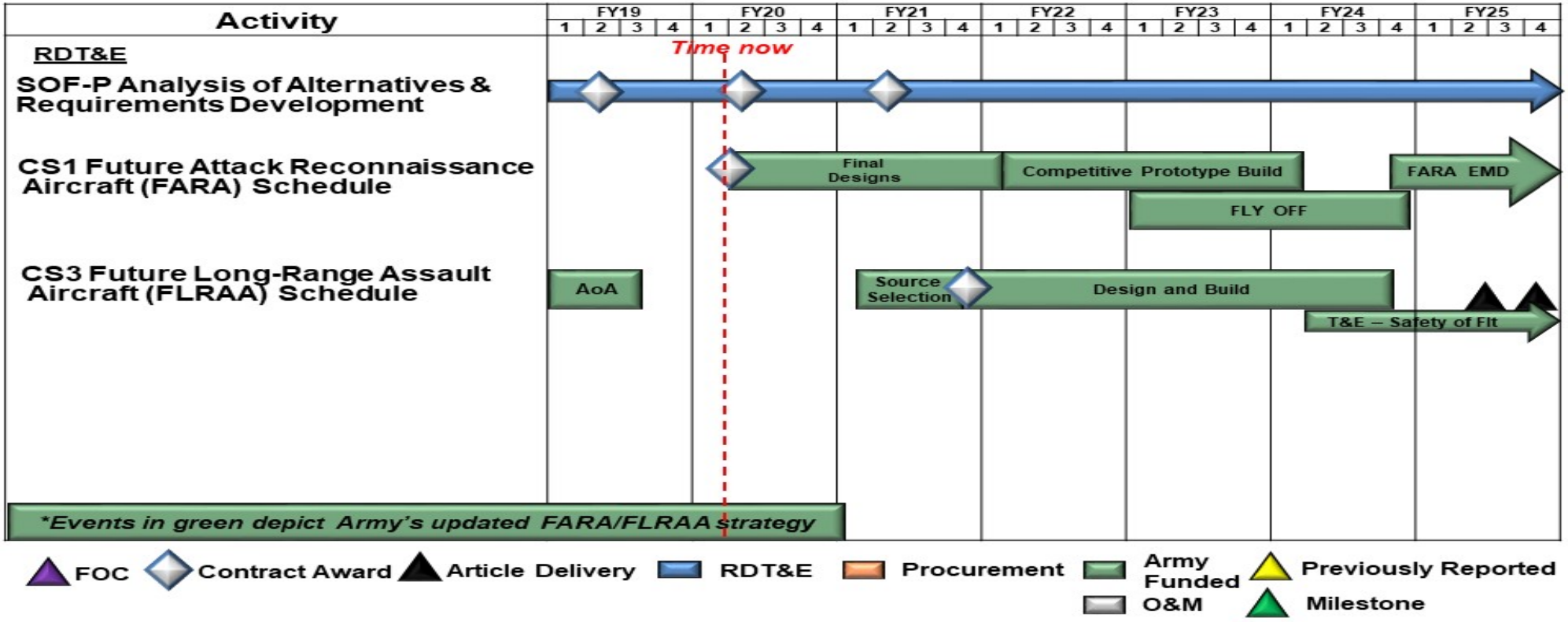

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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MH-47 Program
PEO-Managed Schedule

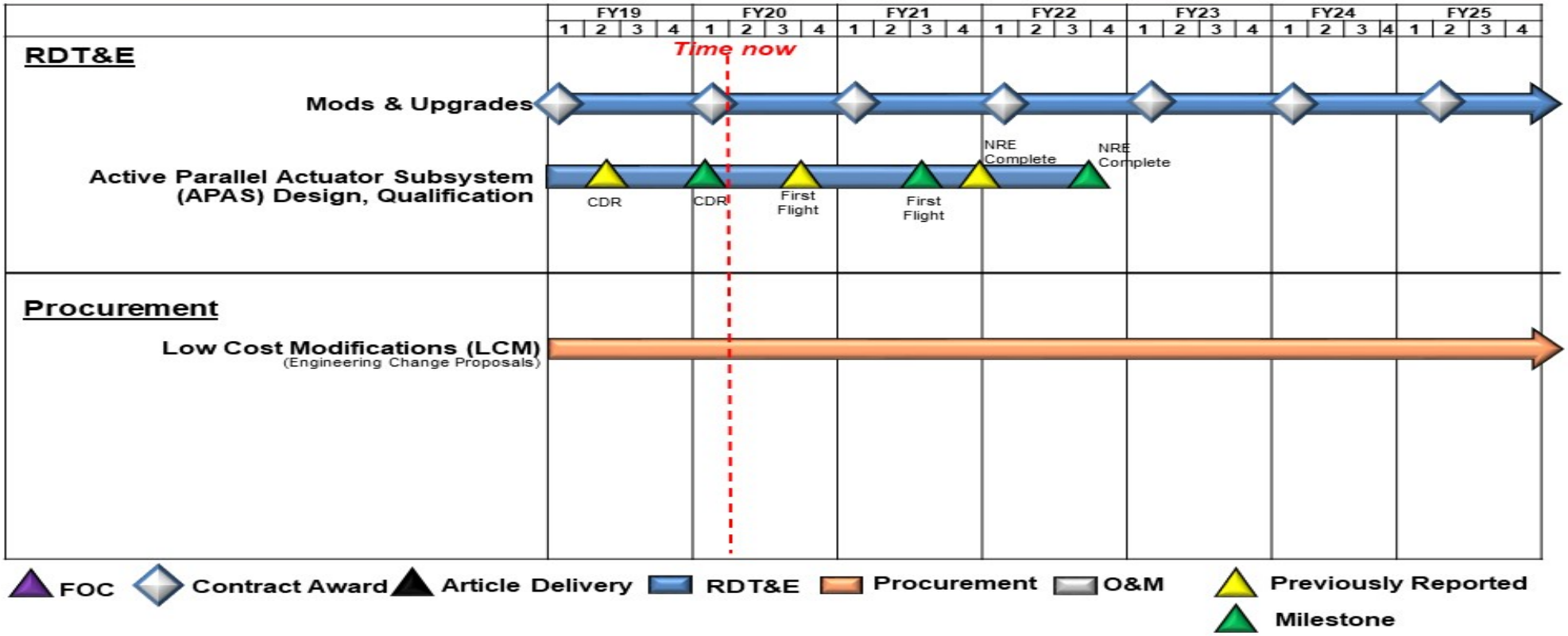

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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Mission Processor Upgrades (MPU)
PEO-Managed Schedule

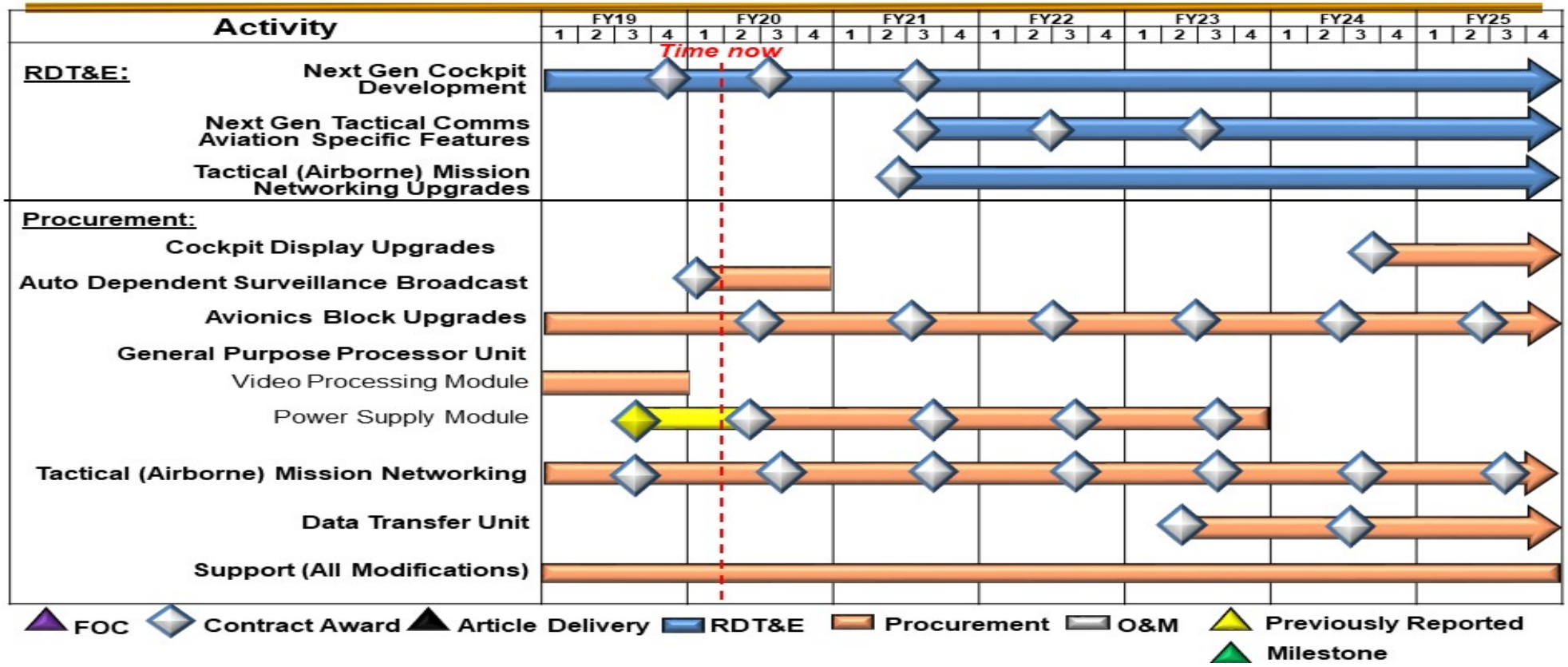

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
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Aircraft Survivability Equipment (ASE)
Infrared Countermeasures (IRCM)
PEO-Managed Schedule

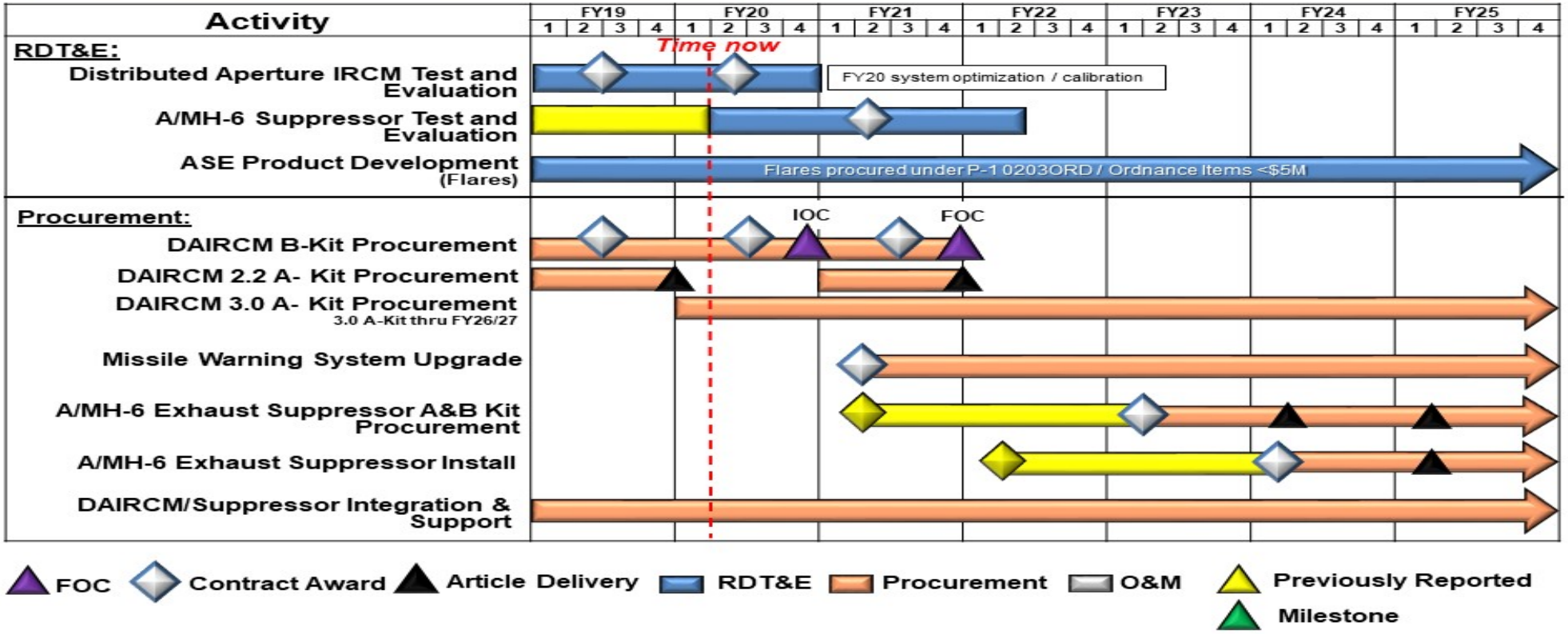

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

ASE Radio Frequency Countermeasures (RFCM) PEO-Managed Schedule

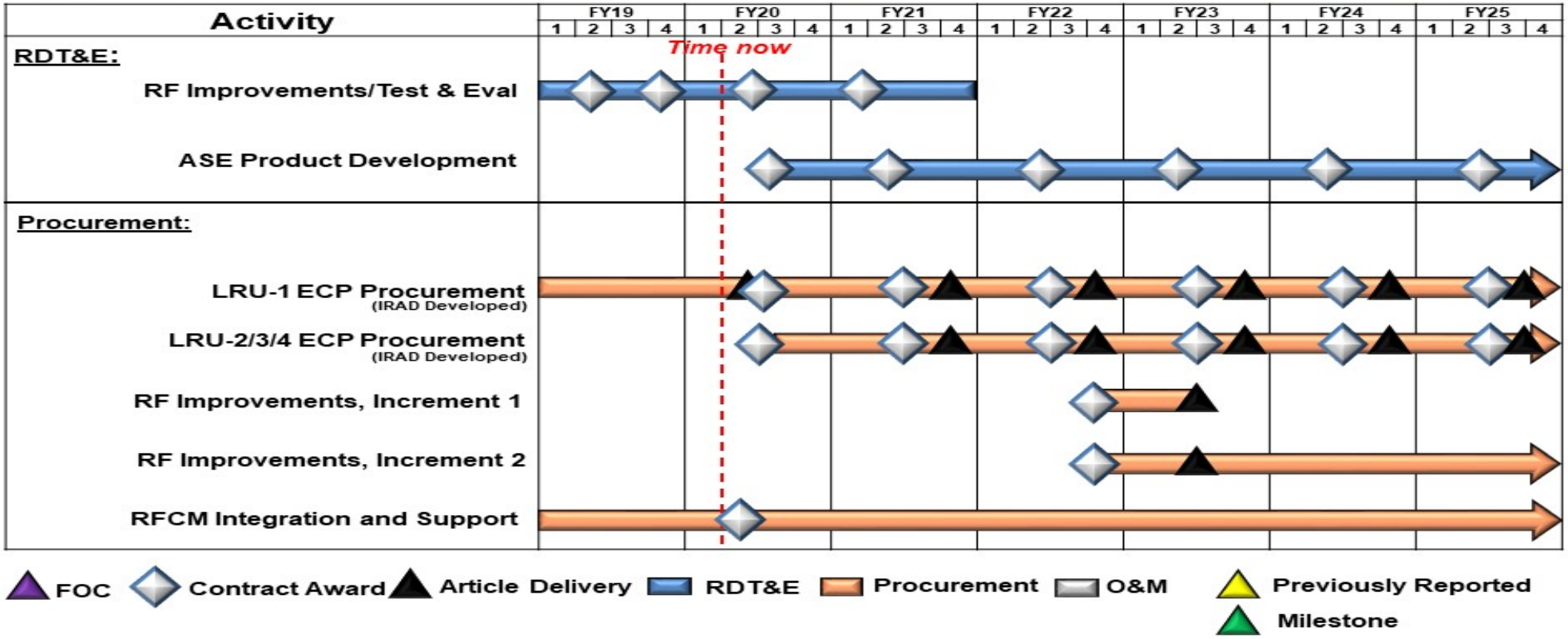

Exhibit R-4, RDT&E Schedule Profile: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Improved Rotary Wing Electro-Optical PEO-Managed Sensor (IRES) Schedule

(formerly NGFLR)

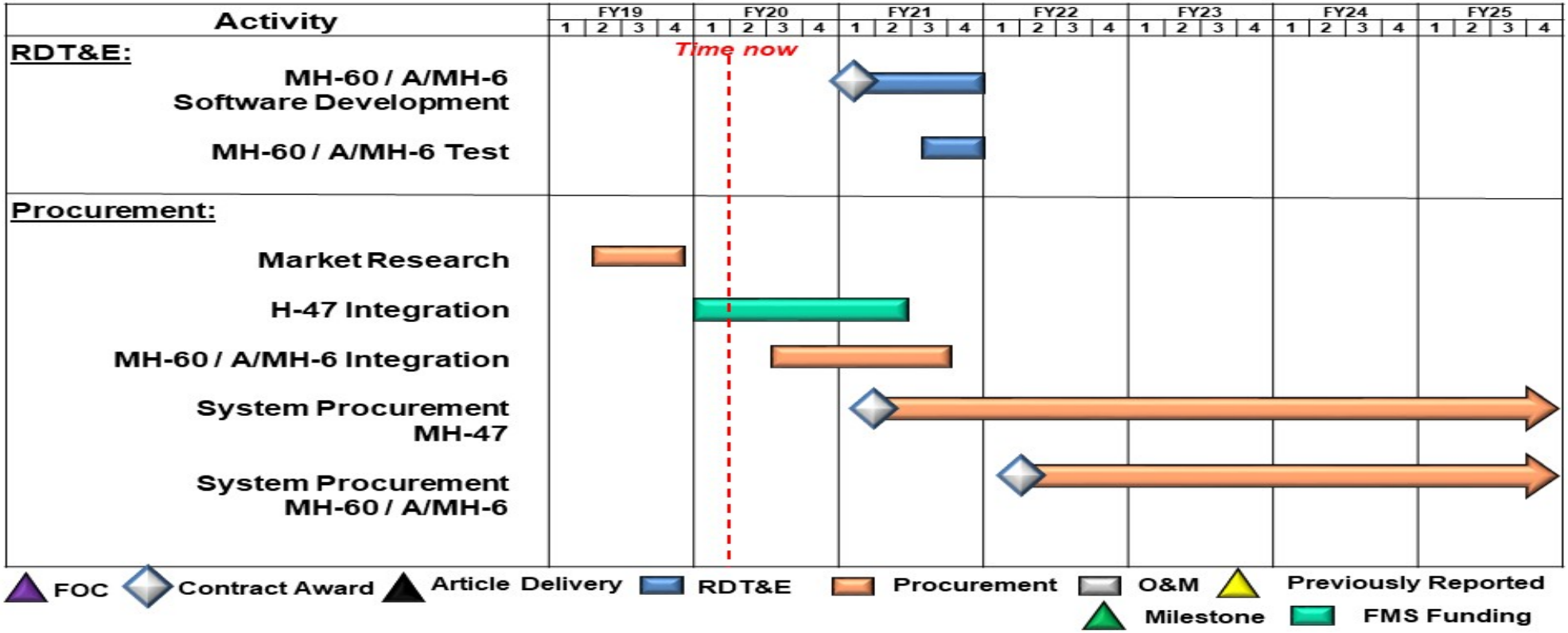

Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
A/MH-6M Block 3.0 and Modifications				
Airworthiness and Flight Characteristics Testing	2	2019	4	2020
Modifications and Upgrades	1	2020	4	2025
MH-60M Modifications and Block Upgrades				
Modifications and Upgrades	1	2019	4	2025
Upturned Exhaust System (UES) II Development	1	2020	3	2020
Degraded Visual Environment				
Design, Development, and Qualification Test	1	2019	4	2019
Airworthiness Release (AWR) Support	3	2020	4	2021
Future Vertical Lift (FVL)				
SOF-P Analysis of Alternatives/Requirements Development	1	2019	4	2025
MH-47 Modifications and Block Upgrades				
Modifications and Upgrades	1	2019	4	2025
Active Parallel Actuator Subsystem (APAS) Design, Qualification	1	2019	3	2022
Mission Processor Upgrades (MPU)				
Next Gen Cockpit Development	1	2019	4	2025
Next Gen Tactical Comms Aviation Specific Features	3	2021	4	2025
Tactical (Airborne) Mission Networking Upgrades	2	2021	4	2025
Aircraft Survivability Equipment (ASE) Infrared Countermeasures (IRCM)				
Distributed Aperture Infrared Countermeasure System Test and Evaluation	1	2019	4	2020
Suppressor Test and Evaluation	2	2020	2	2022
ASE Product Development (Flare)	1	2019	4	2025
ASE Radio Frequency Countermeasures (RFCM)				

Exhibit R-4A, RDT&E Schedule Details: PB 2021 United States Special Operations Command		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
RF Improvements Test and Evaluation	1	2019	4	2021
ASE Product Development (Adaptive ECM, Array, Signature Reduction)	3	2020	4	2025
Improved Rotary Wing Electro-Optical Sensor (IRES), formerly known as Next Generation Forward Looking Infrared (NGFLR)				
Software Development	1	2021	4	2021
Test	3	2021	4	2021