Exhibit R-2, RDT&E Budget Item Justification: PB 2022 United States Special Operations Command	Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	1,703.529	256.658	250.623	173.537	-	173.537	-	-	-	-	-	-
SF100: *Aviation Systems Advanced Development*	1,294.610	152.192	102.280	38.594	-	38.594	-	-	-	-	-	-
SF200: *CV-22*	43.280	23.931	16.773	6.932	-	6.932	-	-	-	-	-	-
SF300: *Armed Overwatch/ Targeting*	0.000	0.000	25.000	22.952	-	22.952	-	-	-	-	-	-
S750: *Mission Training and Preparation Systems*	43.159	8.289	9.623	10.227	-	10.227	-	-	-	-	-	-
S875: *AC/MC-130J*	68.228	28.094	55.083	52.045	-	52.045	-	-	-	-	-	-
D615: *Rotary Wing Aviation*	254.252	44.152	41.864	42.787	-	42.787	-	-	-	-	-	-

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 (HEL); 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 (infil), exfiltration (exfil), 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, interoperability, speed and maneuverability, mission deployment and improved reliability and maintainability of the CV platform. CV-22 SOF Common TF/TA SKR provides long-range, night/adverse weather, clandestine penetration of medium-to-high threat areas to infil, exfil, and resupply SOF forces. Provides a more sustainable/capable replacement to the 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. CV-22 Reliability Improvements designs, integrates, tests and validates system, and sub-system, reliability improvement enhancements to meet required aircraft availability and operational requirements. This incremental development will accelerate the fielding and retrofit of system design improvements directly increasing CV-22 fleet readiness and aircraft availability.

SF300: Armed Overwatch:
Armed Overwatch provides SOF with deployable, affordable, and sustainable aircraft systems capable of executing Close Air Support (CAS), Precision Strike, and Armed Intelligence, Surveillance & Reconnaissance (Armed ISR) requirements in austere and permissive environments for use in Irregular Warfare operations in support of the National Security Strategic Guidance. The funding in this project supports integration, and testing of SOF-unique capabilities and Aircraft Certification 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 24 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 United States Special Operations Command (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: 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 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. Efforts include aircraft sensor data fusion via a common mission processor to create a one world model that serves as a central node for multi-application capability with potential growth in the areas of situational awareness, safety, lethality, and survivability and cross platform synergy. Rotary wing aircraft supported by this project include: MH-60M, MH-47G, A/MH-6, and Future Vertical Lift (FVL). 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.

The FY 2022 funding request was reduced by $9.492 million to account for the availability of prior execution balances.

FY 2022 Fiscal Balancing: -$1.323 million decrease is attributed to the reductions necessary to accommodate budget realities and directed strategy driven changes. Reduces development and testing of the next generation Mission Planning Software suite.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	267.695	230.812	144.939	-	144.939
Current President's Budget	256.658	250.623	173.537	-	173.537
Total Adjustments	-11.037	19.811	28.598	-	28.598
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-0.189			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	20.000			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-9.253	-			
• Other Adjustments	-1.784	-	28.598	-	28.598

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: SF100: *Aviation Systems Advanced Development*		
Congressional Add: *Classified Project*	8.000	-
Congressional Add Subtotals for Project: SF100	8.000	-
Project: D615: *Rotary Wing Aviation*		
Congressional Add: *Future Vertical Lift (FVL)*	7.715	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 United States Special Operations Command	Date: May 2021
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*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Congressional Add Subtotals for Project: D615	7.715	-
Congressional Add Totals for all Projects	15.715	-

Change Summary Explanation

Funding:

FY 2020: Net decrease of $11.037 million is due to transfer of funds to Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) reductions (-$9.253 million); increase to Degraded Visual Environment (DVE) for ($0.086 million), increase TF/TA radar for ($0.130 million) and decrease of funding to ASE due to transfer of funds to Digital Ecosystems to address emerging threats (-$2.000 million).

FY 2021: Net increase of $19.811 million is due to a Congressional directed transfer to Armed Overwatch RDT&E ($20.000 million) and an undistributed Congressional reduction (-$0.189 million).

FY 2022: Net increase of $28.598 million is due to the following: an increase for the continued development of ASE enhancements required to counter emerging threats ($7.065 million); an increase in Future Vertical Lift (FVL) to continue early engineering analysis for SOF Modifications to Future Long Range Assault Aircraft (FLRAA) and Future Attack Reconnaissance Aircraft (FARA) ($5.803 million); RFCM fact of life scope increase as the program transitions to spiral development of future system enhancements ($2.452 million); an increase for the High Energy Laser (HEL) to complete AHEL lab integration and ground testing in FY 2022 ($1.490 million); an increase in Armed Overwatch for the integration and testing of SOF-unique capabilities and aircraft certification efforts ($22.952 million); an increase in SOMPE for the integration of XPlan core and tactical applications capabilities into the TAK product line for efficiency, common interface, common training and cost savings ($0.679 million); a decrease in CV-22 due to transition into final phases of integration/testing of CV-22 SOF Common TF/TA SKR Operational Flight Program software development and integration (-$2.702 million); and a decrease was made available to support emerging critical Command requirements (-$9.141 million).

Schedule: None.

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
SF100: *Aviation Systems Advanced Development*	1,294.610	152.192	102.280	38.594	-	38.594	-	-	-	-	-	-
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 DCM); Electronic Warfare (EW) - Radio Frequency Countermeasures (RFCM); Precision Strike Package (PSP); PSP High Energy Laser (HEL); 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 2020	FY 2021	FY 2022
Title: EW – RFCM	49.245	52.783	21.605
Description: EW-RFCM supports development, integration, and test activities to provide EW capability against Radio Frequency (RF) threats for SOF-unique AC/MC-130J aircraft. The RFCM system is part of the DCM suite that provides situational awareness and threat response processing required for SOF missions.			
FY 2021 Plans: Begin 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 begin system developmental test. Continue aircraft integration, system qualification, and software deficiency resolution.			
FY 2022 Plans: Continues aircraft integration and interoperability activities, system qualification, deficiency resolution and system developmental test. Begins system operational test on the AC-130J and MC-130J aircraft. Also, begins Spiral One activities design to increase RFCM capabilities to meet emerging threats.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Decrease of $31.1781 million is due to transition from system development and integration to test support on the prime Engineering, Manufacturing, and Development (EMD) contract, and emerging critical Command requirements.			
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 2021 Plans:*** Complete development, integration, test, and system improvement of the PSP, to include defensive systems, EO/IR sensors, Alternate Position, Navigation, and Timing, and special mission processor capabilities on SOF C-130s and other SOF aircraft. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $4.629 million was made available to support emerging critical Command requirements.	29.512	4.629	-
Title: PSP 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 2021 Plans:*** Complete subsystems production and deliver to government integration. Begin government integration and ground testing of HEL subsystems'. Continue flight test planning for FY 2023 demonstration. ***FY 2022 Plans:*** Completes delivery of HEL subsystems. Continues government integration and ground testing. Begins flight testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $12.187 million is due to the completion of integration/ground testing expected completion in 2nd Qtr FY 2022.	26.256	24.195	12.008
Title: C-130 SOF Common TF/TA SKR ***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	31.365	12.456	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Systems Officer workload during missions previously performed by five aircrew members on legacy MC-130 tankers and penetrators. ***FY 2021 Plans:*** Complete MC-130J TF/TA developmental flight test and integration testing on aircraft modified with SOF Common TF/TA radar. Continue development and interoperability testing on MC-130J TF/TA systems, electronic warfare systems, and airborne mission networking systems. Train AFSOC aircrews on an MC-130J modified with a SOF Common TF/TA SKR for operational testing. Resolve deficiencies reported during developmental or operational flight testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $12.456 million is due to completing development and interoperability testing.			
Title: MH-47/MH-60 SOF Common TF/TA SKR ***Description:*** MH-47/MH-60 SOF Common TF/TA SKR 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 TF capabilities. ***FY 2021 Plans:*** Continue 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 2022 Plans:*** Continues software spiral efforts to include design, development, integration, and testing of SOF Common TF/TA SKR to reduce Terrain Following signature, support data fusion initiatives, and increase reliability. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $0.267 million was made available to support emerging critical Command requirements.	5.668	2.362	2.095
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 2021 Plans:***	1.896	1.908	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue spiral development to increase the smaller SOF ISR platforms' capabilities through incremental development, integration, and testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $1.908 million was made available to support emerging critical Command requirements.			
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:*** Perform 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 2022 Plans:*** Continues to perform engineering analysis and perform demonstrations to improve aviation mission survivability, mission automation, sensor fusion, targeting enhancement, cyber hardening, navigation in denied environments, and datalink enhancements to support Fixed Wing next gen ISR, next gen Mobility and next gen Strike platforms. 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. Other technology advancements for Fixed Wing platforms include improvements for increased range, speed with reduced time to target, improving ability to insert and recover forces in contested environments and technology analysis on advanced mobility platforms (deep penetrating and aquatic landing). Strike enhancements include targeting/engagement automation, weapons effects and stand-off capability. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $1.061 million was made available to support emerging critical Command requirements.	-	3.947	2.886
Title: Avionics Modifications (AVNCS) ***Description:*** Funding supports software development and integration for the MC/EC-130J Global Positioning System (GPS) hardening effort.	0.250	-	-
Accomplishments/Planned Programs Subtotals	144.192	102.280	38.594

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

	FY 2020	FY 2021
Congressional Add: Classified Project	8.000	-
FY 2020 Accomplishments: Details provided under Separate Cover		
Congressional Adds Subtotals	8.000	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• PROC/5000C13000: *C-130 Modifications*	16.461	17.014	13.373	-	13.373	-	-	-	-	-	-
• PROC/2012C130J: *AC/MC-130J*	143.232	153.914	205.216	-	205.216	-	-	-	-	-	-
• PROC/1202PSP: *Precision Strike Package*	232.599	233.111	165.224	-	165.224	-	-	-	-	-	-
• PROC0201RWUPGR: *Rotary Wing Upgrades and Sustainment*	177.483	211.041	202.278	-	202.278	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

• EW – RFCM: Awarded $700 million ceiling acquisition and procurement contract covering Engineering and Manufacturing Development (EMD), Low-Rate Initial Production (L-RIP), and Full-Rate Production (FRP) activities. EMD and LRIP are Fixed Price Award Fee (FPAF) incentivizing schedule and were awarded in 3rd Qtr FY 2020. FRP and other programmatic support activities (such as data rights and system integration laboratory options) are Firm Fixed Price (FFP).

• 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 Ordnance Technology Consortium OTA or developed and assembled by NSWC Dahlgren. Both 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.

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

• ISR Payload 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 Joint DOD programs to advance the technology levels for both the current Fixed Wing (FW) platforms and the advanced mobility platforms along with the Joint Aircraft Survivability Program sponsored projects to recommend material solutions for demonstration and potential integration on FW aircraft.

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Electronic Warfare (EW) - Radio Frequency Countermeasures (RFCM) B-Kit Competitive Demonstration	C/FFP	Various : Various	-	10.050	Nov 2019	-		-		-		-	0.000	10.050	-
EW - RFCM Follow-on Development Contract	C/FPAF	Sierra Nevada Corp. : Centennial, CO	-	30.195	May 2020	44.383	Mar 2021	5.361	Nov 2021	-		5.361	Continuing	Continuing	-
EW RFCM Spiral One	C/TBD	Various : Various	-	-		-		6.950	Mar 2022	-		6.950	Continuing	Continuing	-
Precision Strike Package (PSP) for SOF - Defensive Systems	C/Various	Various : Various	9.260	18.641	Jan 2020	3.000	Mar 2021	-		-		-	0.000	30.901	-
PSP for SOF- Alternate Position, Navigation, and Timing	C/Various	Various : Various	8.308	-		0.500	Feb 2021	-		-		-	0.000	8.808	-
PSP for SOF - Adverse Weather	C/Various	Various : Various	3.432	1.000	Mar 2020	-		-		-		-	0.000	4.432	-
PSP for SOF - Deficiency Resolution	C/Various	Various : Various	2.000	4.789	Mar 2020	0.711	Apr 2021	-		-		-	0.000	7.500	-
PSP for SOF- Other Government Costs	C/Various	Various : Various	1.020	-		0.418	Feb 2021	-		-		-	0.000	1.438	-
PSP High Energy Laser (HEL) - High Power Laser	C/CPFF	Lockheed Martin Aculite : Bothell, WA	17.000	4.468	Apr 2020	1.810	Mar 2021	-		-		-	0.000	23.278	-
PSP HEL - Subsystem Assembly	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	5.658	11.376	Jul 2020	11.473	Apr 2021	-		-		-	Continuing	Continuing	-
PSP HEL - Battery Development	C/CPFF	General Technical Services : Wall, NJ	1.914	1.630	Apr 2020	1.048	Mar 2021	-		-		-	0.000	4.592	-
PSP HEL - Thermal Development	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	1.800	4.123	Jul 2020	-		-		-		-	0.000	5.923	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PSP HEL - Integration and Ground Testing	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	4.659	Jul 2020	7.564	Apr 2021	10.608	Dec 2021	-		10.608	Continuing	Continuing	-
PSP HEL - Flight Testing/ Demonstration	C/CPFF	Various : Various	-	-		2.300	Apr 2021	1.400	Mar 2022	-		1.400	Continuing	Continuing	-
C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) Silent Knight Radar (SKR)	C/CPIF	Lockheed Martin Aero : Marietta, GA	187.881	19.407	Jan 2020	5.847	Jan 2021	-		-		-	0.000	213.135	-
MH-47/MH-60 SOF Common TF/TA SKR	SS/FP	Raytheon : McKinney, TX	11.430	3.733	Apr 2020	1.653	Apr 2021	1.467	Apr 2022	-		1.467	Continuing	Continuing	-
Intelligence, Surveillance, and Reconnaissance (ISR) Payload Development, Test and Integration	Various	Various : Various	5.542	1.896	Nov 2019	1.908	Nov 2020	-		-		-	0.000	9.346	-
Aviation Engineering Analysis (AEA) – Aircraft Survivability Analysis	C/CPFF	Various : Various	24.389	-		1.500	Jan 2021	1.760	Jan 2022	-		1.760	Continuing	Continuing	-
AEA – Joint Aircraft Survivability Program (JASP)	C/CPFF	JASP : Various	-	-		2.447	Jan 2021	1.126	Jan 2022	-		1.126	Continuing	Continuing	-
C-130 Avionics Modifications	C/CPFF	Lockheed Martine : SOFSA Lexington, KY	0.500	0.250		-		-		-		-	0.000	0.750	-
Classified Project - Congressional Add	C/Various	Under Separate Cover : Under Separate Cover	-	8.000		-		-		-		-	0.000	8.000	-
Prior Year Funding - Completed Efforts	Various	Various : Various	666.076	-		-		-		-		-	0.000	666.076	-
		Subtotal	946.210	124.217		86.562		28.672		-		28.672	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 United States Special Operations Command		Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EW-RFCM	C/Various	Various : Various	23.934	5.919	Jan 2020	3.400	Jan 2021	1.171	Jan 2022	-		1.171	Continuing	Continuing	-
C-130 SOF Common TF/ TA SKR	C/CPIF	Various : Various	16.089	3.887	Dec 2019	1.185	Dec 2020	-		-		-	0.000	21.161	-
PSP for SOF - Other Government Costs	C/Various	Various : Various	3.663	5.082	Apr 2020	-		-		-		-	0.000	8.745	-
Prior Year Funding - Completed Efforts	Various	Various : Various	38.802	-		-		-		-		-	0.000	38.802	-
		Subtotal	82.488	14.888		4.585		1.171		-		1.171	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EW-RFCM	C/Various	Various : Various	8.380	3.081	Dec 2019	5.000	Dec 2020	8.123	Dec 2021	-		8.123	Continuing	Continuing	-
C-130 SOF Common TF/ TA SKR	C/CPIF	Various : Various	35.699	8.071	Dec 2019	5.424	Dec 2020	-		-		-	0.000	49.194	-
MH-47/MH-60 SOF Common TF/TA SKR	SS/FP	Various : Various	125.371	1.935	Jan 2020	0.709	Jan 2021	0.628	Jan 2022	-		0.628	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	39.130	-		-		-		-		-	0.000	39.130	-
		Subtotal	208.580	13.087		11.133		8.751		-		8.751	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Funding - Completed Efforts	Various	Various : Various	57.332	-		-		-		-		-	0.000	57.332	-
		Subtotal	57.332	-		-		-		-		-	0.000	57.332	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 United States Special Operations Command			Date: May 2021
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) SF100 / *Aviation Systems Advanced Development*	

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,294.610	152.192		102.280		38.594		-		38.594	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
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 Radio Frequency Countermeasures (RFCM) Schedule

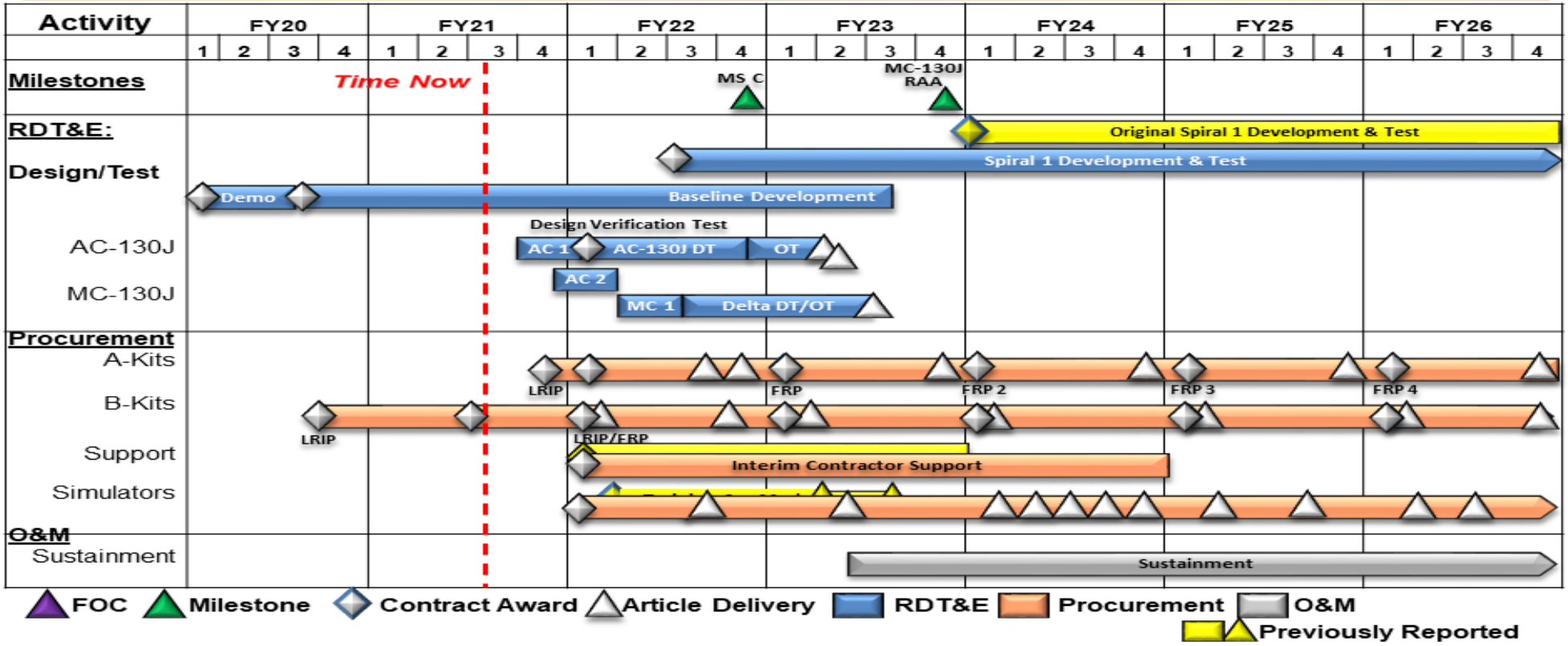

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

AC-130J/Precision Strike Package (PSP) Schedule

Note: Procurement contract award milestones updates are administrative and do not depict a schedule slip. Test and Evaluation is included in the remaining RDT&E lines.

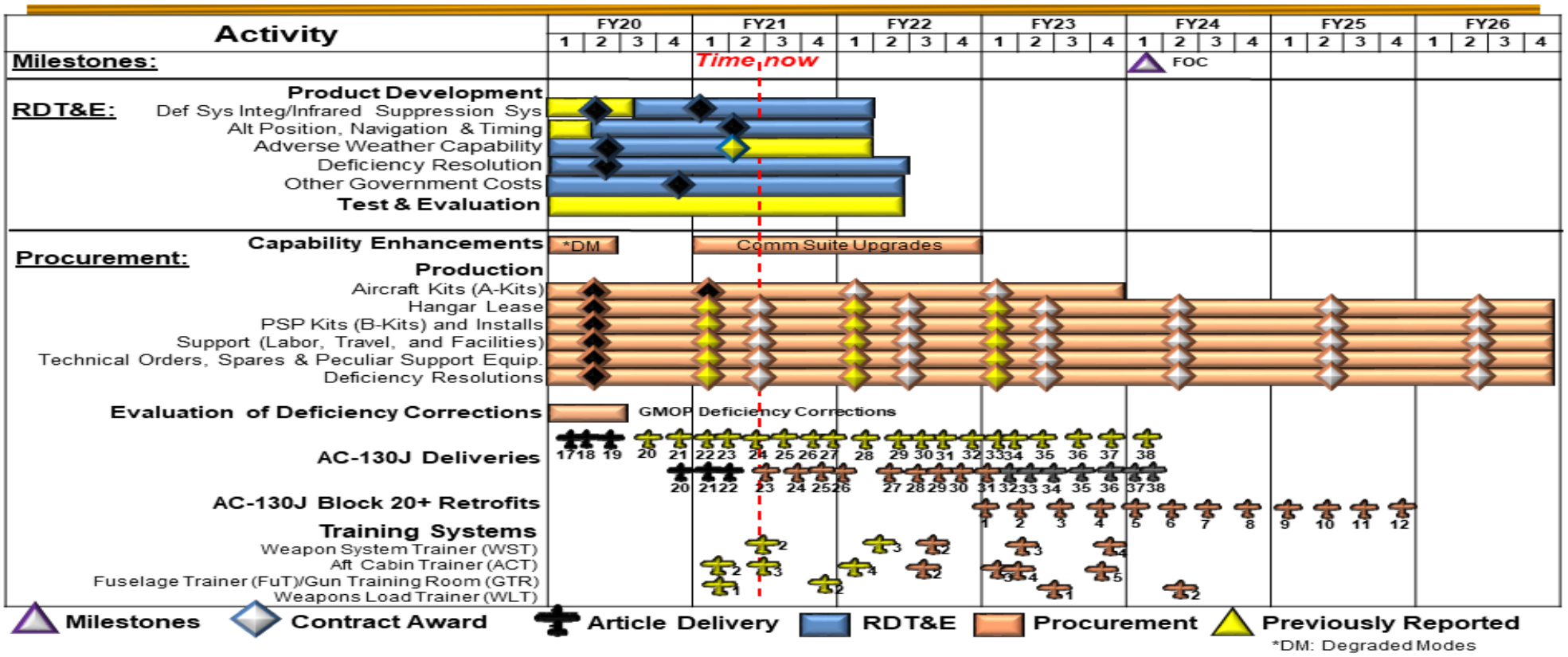

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

AC-130J High Energy Laser (HEL) Schedule

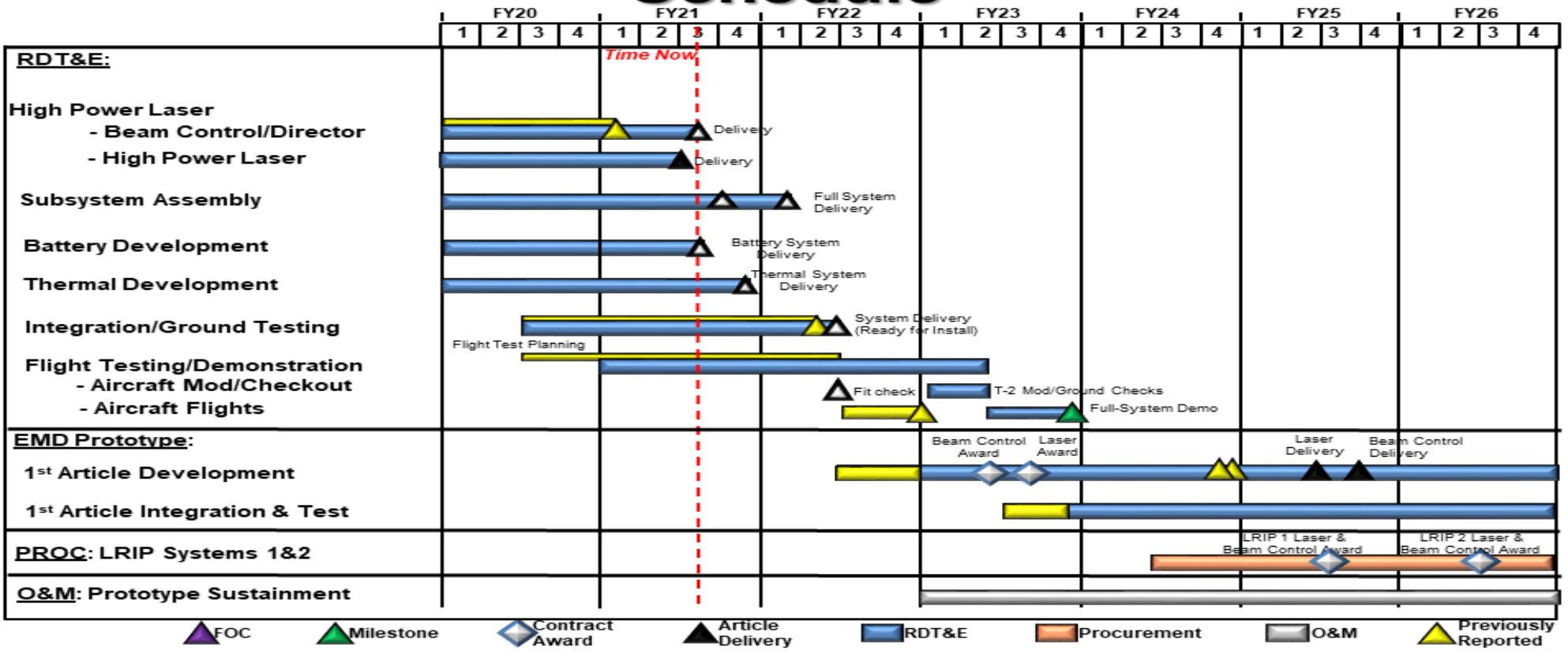

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) Silent Knight Radar (SKR) Schedule

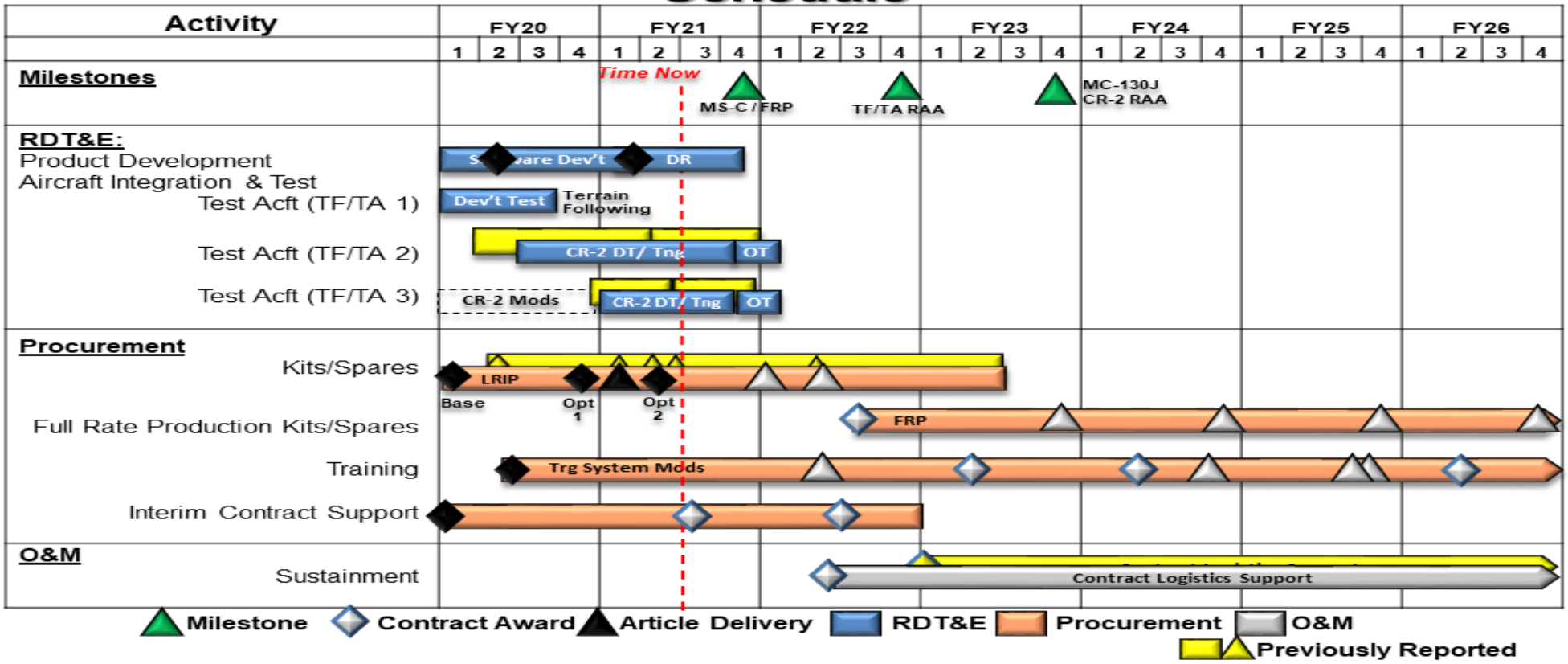

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

MH-47/MH-60 SOF Common TF/TA SKR Schedule

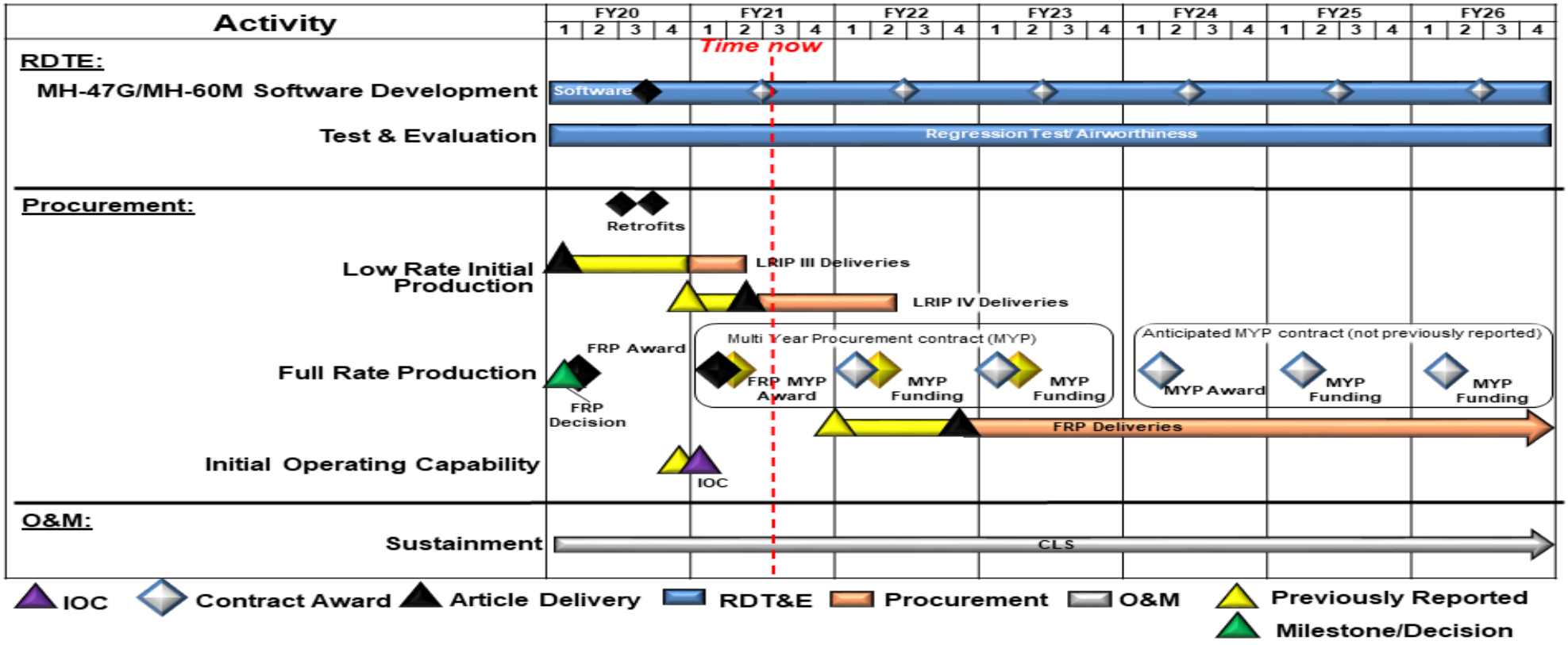

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Intelligence, Surveillance, and Reconnaissance (ISR) Payload Schedule

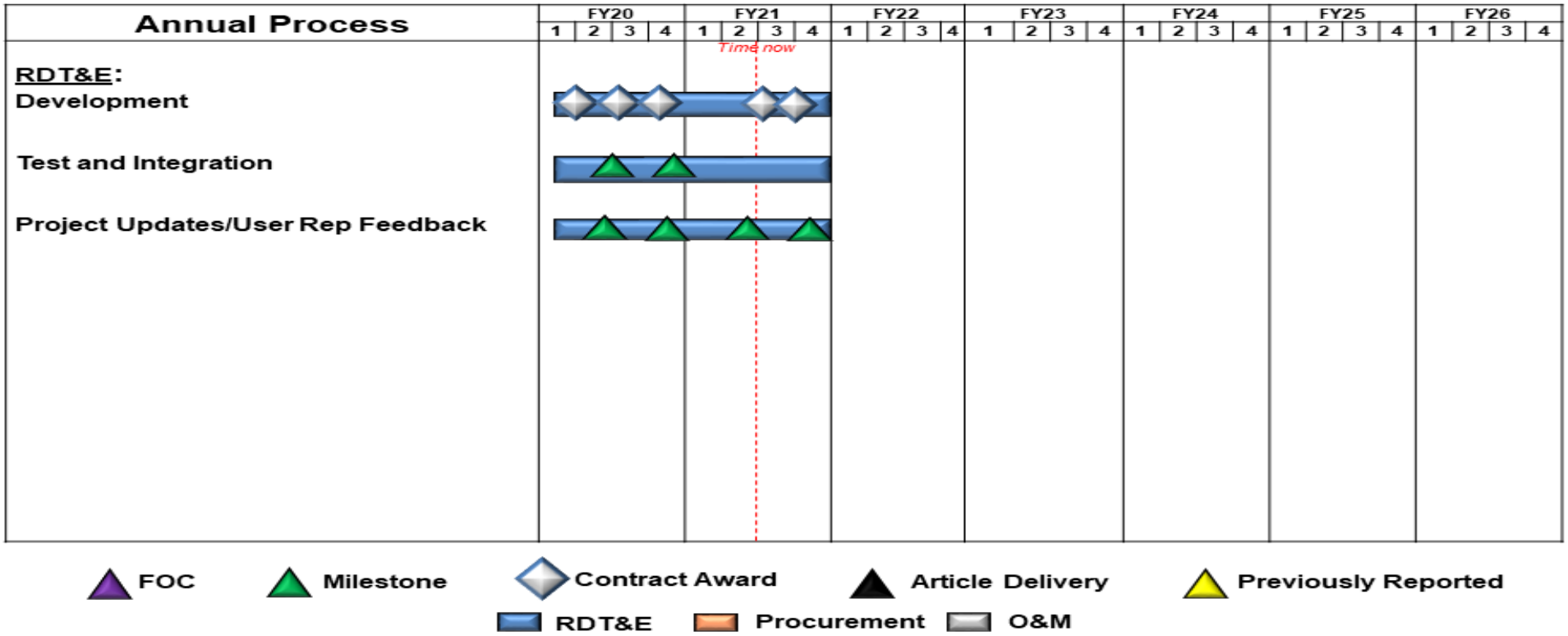

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Aviation Engineering Analysis Schedule

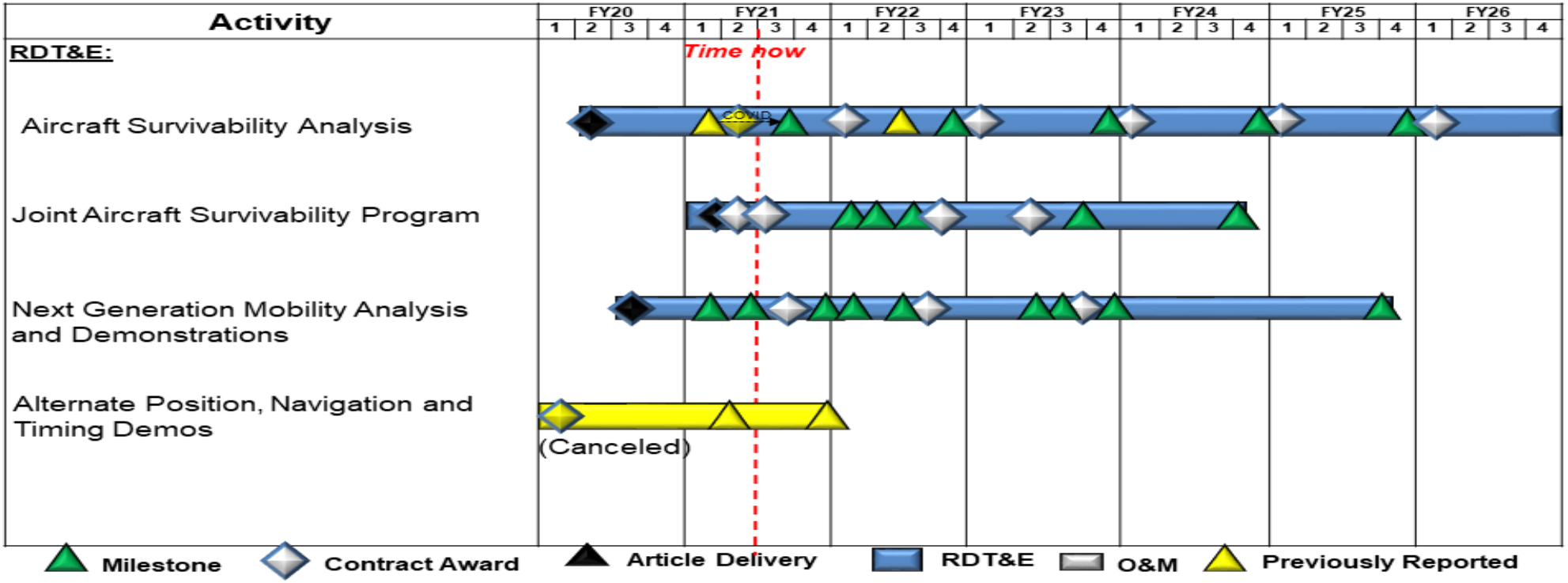

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

C-130 Avionics Modifications Schedule

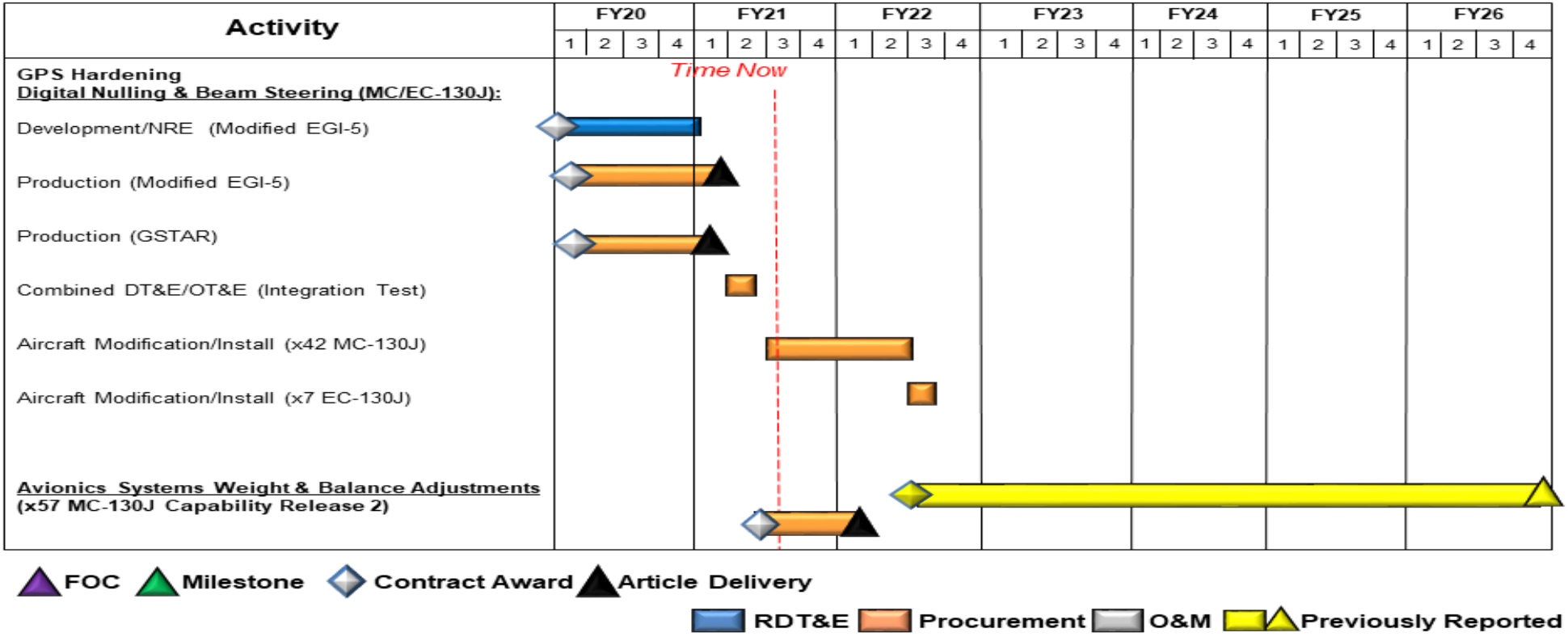

Exhibit R-4A, RDT&E Schedule Details: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Electronic Warfare - Radio Frequency Countermeasures (EW-RFCM)				
Product Development, Integration and Test	1	2020	3	2023
Spiral 1 Development	3	2022	4	2026
Developmental Test and Operational Test (DT/OT) AC-130J	3	2021	2	2023
DT/OT #1 MC-130J	1	2022	3	2023
Precision Strike Package (PSP) for SOF				
Defensive Systems Product Development	3	2020	1	2022
Alternate Position, Navigation and Timing Product Development	2	2020	1	2022
Adverse Weather Product Development	1	2020	1	2021
Deficiency Resolution Product Development	1	2020	2	2022
Other Capability Enhancements Product Development	1	2020	2	2022
PSP High Energy Laser (HEL)				
PSP HEL 60kW Beam Control/Beam Director	1	2020	3	2021
PSP HEL High Power Laser	1	2020	3	2021
PSP HEL Subsystem Assembly	1	2020	1	2022
PSP HEL Battery Development	1	2020	3	2021
PSP HEL Thermal Development	1	2020	4	2021
PSP HEL Integration and Ground Testing	3	2020	2	2022
PSP HEL Flight Testing/Demonstration	1	2021	4	2023
C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) Silent Knight Radar (SKR)				
Software Development	1	2020	4	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2022 United States Special Operations Command		Date: May 2021
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**
Development/Flight Testing	1	2020	4	2021
Operational Testing	4	2021	1	2022
MH-60/MH-47 SOF Common (TF/TA) SKR				
MH-47G/MH-60M Product Development & Test (Software Spirals)	1	2020	4	2026
Intelligence, Surveillance, and Reconnaissance (ISR) Payload				
Development	1	2020	4	2021
Testing and Integration	1	2020	4	2021
Project Update/User Rep Feedback	1	2020	4	2021
Aviation Engineering Analysis (AEA)				
Aircraft Survivability Analysis	2	2020	4	2026
Joint Aircraft Survivability Program	1	2021	4	2024
Next Generation Mobility Analysis and Demonstrations	2	2020	4	2025
C-130 Avionics Modifications				
Development/NRE (Modified EGI-5)	1	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
SF200: *CV-22*	43.280	23.931	16.773	6.932	-	6.932	-	-	-	-	-	-
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 (ISR), weapons, SOF communications, avionics, interoperability, defensive/survivability systems, speed and 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, interoperability, defensive/survivability systems, speed and 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 and improves upon 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.

CV-22 Reliability Improvements: Design, integrate, test and validate system, and sub-system, reliability improvement enhancements to meet required aircraft availability and operational requirements. This incremental development will accelerate the fielding and retrofit of system design improvements directly increasing CV-22 fleet readiness and aircraft availability.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: CV-22 SOF Common TF/TA SKR	23.437	14.644	4.851
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			

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
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 2020	FY 2021	FY 2022
TF/TA SKR Operational Flight Program (OFP) software, and development of CV-22 platform software and hardware to support integration and test. ***FY 2021 Plans:*** Continue integration/testing of CV-22 SOF Common TF/TA SKR OFP software development and continue integration/testing of the CV-22 SOF Common TF/TA SKR. Complete core software development build. ***FY 2022 Plans:*** Continues integration/testing of CV-22 SOF Common TF/TA SKR OFP software development and continues integration/testing of the CV-22 SOF Common TF/TA SKR. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $9.793 million is due to transition into final phases of integration/testing of the CV-22 SOF Common TF/TA SKR OFP software development and integration. The core software development build is expected to complete in FY21, with FY22 efforts continuing the system evaluation and subsequent resolution of deficiencies discovered during developmental testing.			
Title: CV-22 Block 20 Systems ***Description:*** Improves situational awareness, ISR, weapons, SOF communications, avionics, interoperability, survivability, speed and maneuverability, mission deployment, reliability, and maintainability of the CV-22 platform. Included within Block 20 is the 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 and cockpit firing controls for pilot operation. ***FY 2021 Plans:*** Contract closeout of current preliminary engineering design of Block 20 FDWS onto CV-22. Previous efforts leading up to FY20 were MFP-4 funded. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $2.129 million was due to contract closeout of current preliminary engineering design of Block 20 FDWS.	0.494	2.129	-
Title: CV-22 Reliability Improvements ***Description:*** Improves platform reliability and maintainability to meet fleet aircraft availability requirements. Efforts include design and re-design enhancements, and acceleration of field integration. ***FY 2022 Plans:***	-	-	2.081

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
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 2020	FY 2021	FY 2022
Begins Non-Recurring Engineering (NRE) required to accelerate improved Block 3 Engine Turbine upgrades. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase of $2.081 million is due to command priority of CV-22 reliability improvement initiative.			
Accomplishments/Planned Programs Subtotals	23.931	16.773	6.932

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• PROC/1000CV22: *CV-22 SOF Modification*	17.256	54.109	41.762	-	41.762	-	-	-	-	-	-
• RDT&E1/0401318F: *RDT&E, USAF*	16.606	14.873	15.183	-	15.183	-	-	-	-	-	-
• RDT&E/0604262N: *V-22 RDT&E, N BA-05*	184.705	133.425	110.559	-	110.559	-	-	-	-	-	-

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 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 Engineering & Manufacturing Development contract for development.

The CV-22 Reliability Improvement projects will consist of a mix of competitive and sole-source awards.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 United States Special Operations Command			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CV-22 SOF Common Terrain Following/Terrain Avoidance (TF/TA) Silent Knight Radar (SKR) - Operational Flight Program (OFP) Development	C/CPFF	Various : Various	19.402	13.593	Nov 2019	7.720	Nov 2020	2.571	Dec 2021	-		2.571	Continuing	Continuing	-
CV-22 SOF Common TF/ TA SKR- Integration	C/CPFF	Various : Various	18.208	7.734	Feb 2020	3.982	Nov 2020	1.310	Dec 2021	-		1.310	Continuing	Continuing	-
CV-22 Block 20 Systems	Various	Various : Various	1.057	0.494	Feb 2020	2.129	Nov 2020	-		-		-	0.000	3.680	-
CV-22 Reliability Improvements	C/Various	Various : Various	-	-		-		1.081	Dec 2021	-		1.081	Continuing	Continuing	-
		Subtotal	38.667	21.821		13.831		4.962		-		4.962	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CV-22 SOF Common TF/ TA SKR - OFP	C/CPFF	Various : Various	1.645	0.937	Nov 2019	2.412	Nov 2020	0.776	Dec 2021	-		0.776	Continuing	Continuing	-
CV-22 SOF Common TF/ TA SKR- Integration	C/CPFF	Various : Various	1.032	1.173	Feb 2020	0.530	Nov 2020	0.194	Dec 2021	-		0.194	Continuing	Continuing	-
CV-22 Reliability Improvements Test and Evaluation	C/Various	Various : Various	-	-		-		1.000	Dec 2021	-		1.000	Continuing	Continuing	-
Prior Year	Various	Various : Various	1.936	-		-		-		-		-	0.000	1.936	-
		Subtotal	4.613	2.110		2.942		1.970		-		1.970	Continuing	Continuing	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.280	23.931		16.773		6.932		-		6.932	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF200 / *CV-22*

CV-22 Schedule

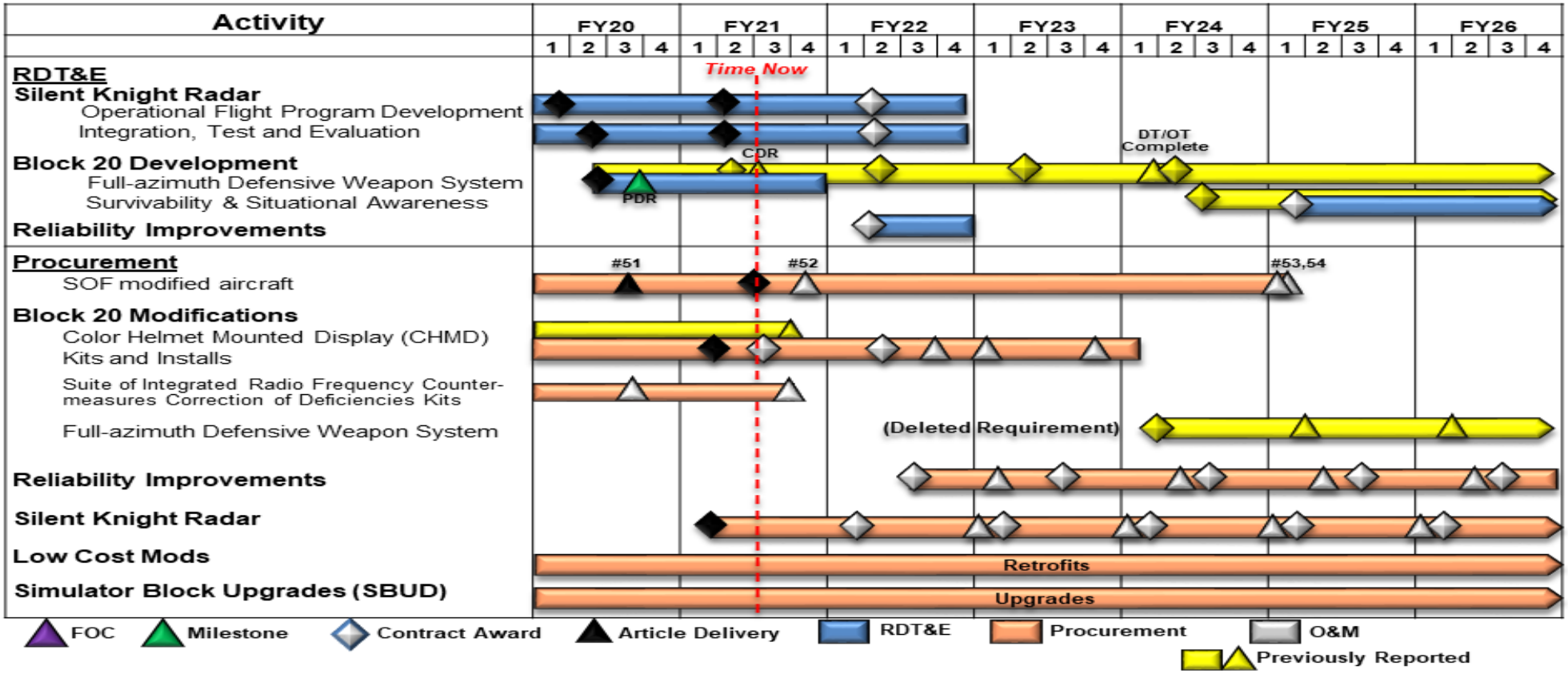

Exhibit R-4A, RDT&E Schedule Details: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF200 / *CV-22*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CV-22				
SOF Common TF/TA (Silent Knight) Radar - Operational Flight Program (OFP) Development	1	2020	4	2022
SOF Common TF/TA (Silent Knight) Radar - Radar Integration, Test & Evaluation	1	2020	4	2022
Block 20 Full-azimuth Defensive Weapon System (FDWS) Development/Test	2	2020	4	2021
Block 20 Survivability & Situational Awareness	1	2025	4	2026
Reliability Improvements Test and Evaluation	2	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
SF300: *Armed Overwatch/ Targeting*	0.000	0.000	25.000	22.952	-	22.952	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Armed Overwatch provides Special Operations Forces (SOF) with deployable, affordable, and sustainable aircraft systems capable of executing Close Air Support (CAS), Precision Strike, and Armed Intelligence, Surveillance & Reconnaissance (Armed ISR) requirements in austere and permissive environments for use in Irregular Warfare operations in support of the National Security Strategic Guidance. The funding in this project supports integration and testing of SOF-unique capabilities and Aircraft Certification efforts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Armed Overwatch/Targeting	-	25.000	22.952
Description: The funding in this project supports integration and testing of SOF-unique capabilities and Aircraft Certification efforts. ***FY 2021 Plans:*** Initiate and complete prototype demonstrations. ***FY 2022 Plans:*** Initiates integration and testing of SOF unique capabilities and aircraft certification efforts. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $2.048 million is due to completion of prototype demonstrations 4Q FY 2021.			
Accomplishments/Planned Programs Subtotals	-	25.000	22.952

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• PROC/0201ARMOWT: *Armed Overwatch/Targeting*	-	21.000	170.000	-	170.000	-	-	-	-	-	-

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF300 / *Armed Overwatch/Targeting*

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 FY 2021. The demonstrations results will be used to determine whether a solicitation for a follow-on production contract is in the best interest of the Government.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 United States Special Operations Command			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Armed Overwatch/ Targeting: Prototype Testing/Demonstration	C/FFP	Various : Various	-	-		25.000	May 2021	-		-		-	0.000	25.000	-
Armed Overwatch/ Targeting: Aircraft Certification and SOF Unique Integration	C/FFP	Various : Various	-	-		-		22.952	Apr 2022	-		22.952	Continuing	Continuing	-
		Subtotal	-	-		25.000		22.952		-		22.952	Continuing	Continuing	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		25.000		22.952		-		22.952	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF300 / *Armed Overwatch/Targeting*

Armed Overwatch Schedule

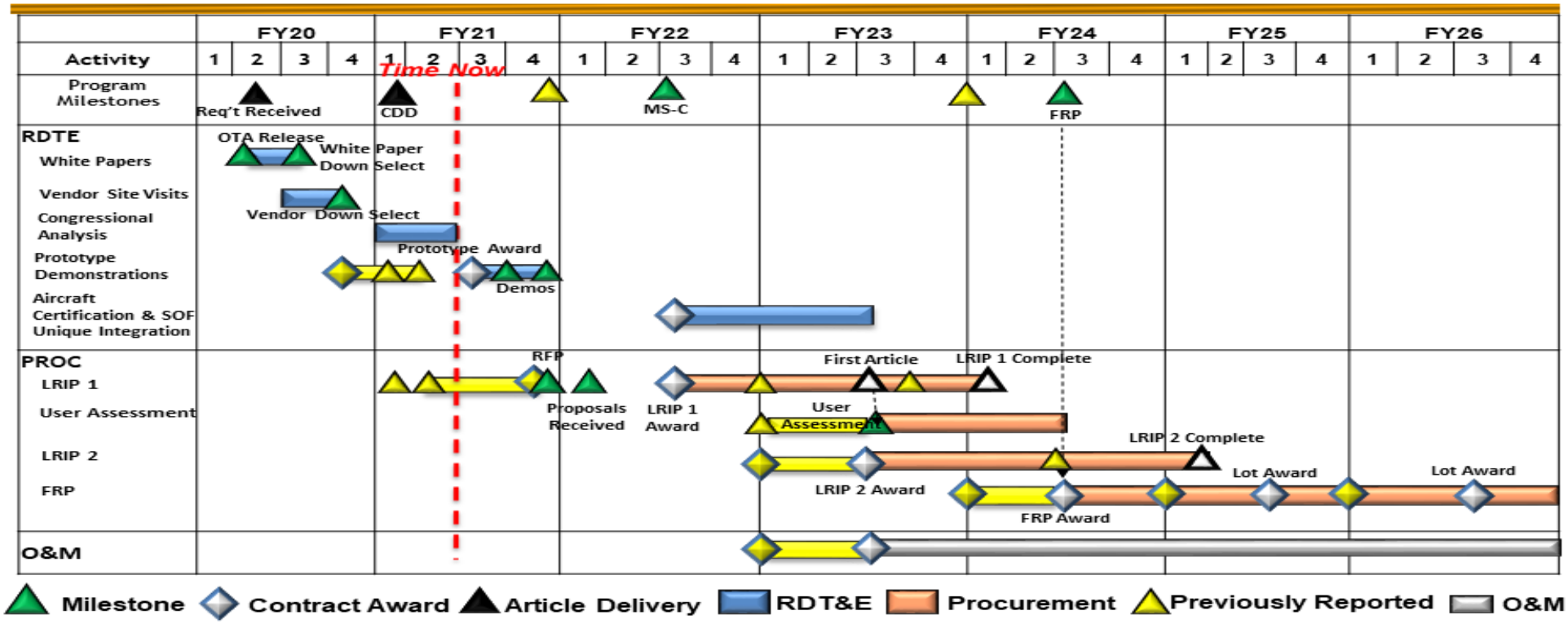

Exhibit R-4A, RDT&E Schedule Details: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF300 / *Armed Overwatch/Targeting*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Armed Overwatch/Targeting				
Prototype Testing/Demonstration	3	2021	4	2021
Aircraft Certification and SOF Unique Integration	3	2022	3	2023

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
S750: *Mission Training and Preparation Systems*	43.159	8.289	9.623	10.227	-	10.227	-	-	-	-	-	-
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 Forces (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 2020	FY 2021	FY 2022
Title: Special Operations Mission Planning and Execution (SOMPE)	8.289	9.623	10.227

Description: 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 United States Special Operations Command (USSOCOM) Headquarters, Theater Special Operations Commands (TSOC), Joint Special Operations Task Forces, Joint Special Operations Aviation Components, SOF warfighters, and SOF warfighter platforms.

FY 2021 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 2022 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
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 2020	FY 2021	FY 2022
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 2021 to FY 2022 Increase/Decrease Statement:*** Increase of $0.604 million is due to integration of XPlan core and tactical applications capabilities into the TAK product line for efficiency, common interface, common training and increased interoperability with DoD and other government agencies.			
Accomplishments/Planned Programs Subtotals	8.289	9.623	10.227

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The SOMPE program is transitioning to the software acquisition pathway. 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 2022 United States Special Operations Command		Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	34.722	6.797	Jan 2020	7.712	Jan 2021	8.204	Jan 2022	-		8.204	Continuing	Continuing	-
		Subtotal	34.722	6.797		7.712		8.204		-		8.204	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOMPE Software	MIPR	Special Operations Mission Planning Office : Fort Eustis, VA	2.697	0.414	Feb 2020	0.375	Feb 2021	0.386	Feb 2022	-		0.386	Continuing	Continuing	-
		Subtotal	2.697	0.414		0.375		0.386		-		0.386	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOMPE Software	C/CPFF	Cruz Associates : Shalimar, FL	5.740	1.078	Jan 2020	1.536	Jan 2021	1.637	Jan 2022	-		1.637	Continuing	Continuing	-
		Subtotal	5.740	1.078		1.536		1.637		-		1.637	Continuing	Continuing	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.159	8.289		9.623		10.227		-		10.227	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
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 and Execution (SOMPE) Schedule

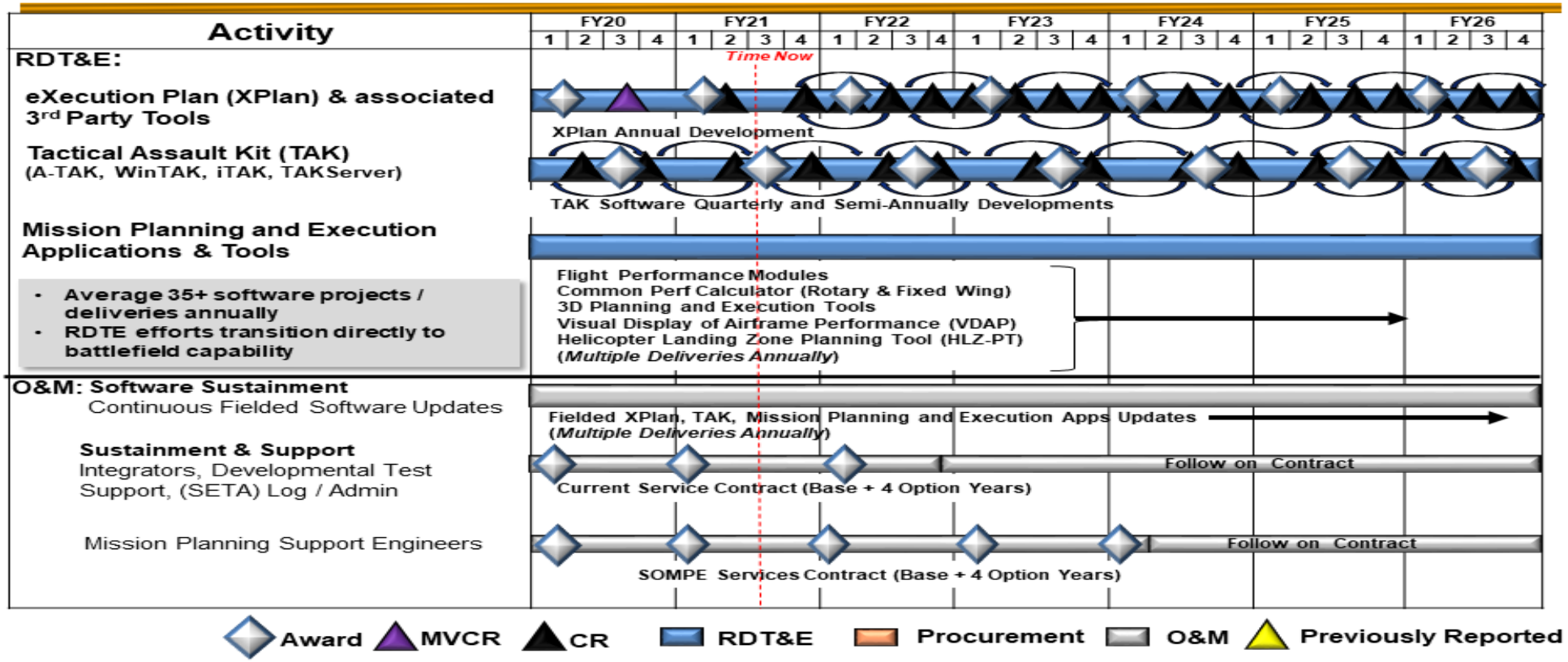

Exhibit R-4A, RDT&E Schedule Details: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S750 / *Mission Training and Preparation Systems*

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	2020	4	2026
Tactical Assault Kit (TAK)	1	2020	4	2026
Mission Planning and Execution Applications & Tools	1	2020	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command			Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
S875: *AC/MC-130J*	68.228	28.094	55.083	52.045	-	52.045	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AC/MC-130J project funds core Special Operations Forces (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 24 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 United States Special Operations Command (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 2020	FY 2021	FY 2022
Title: MC-130J Airborne Mission Networking (AbMN)	2.592	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 2021 Plans:*** Complete developmental, operational, and interoperability testing on the MC-130J along with the SOF Common TF/TA radar, special missions systems, and electronic warfare systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $2.688 million is due to the completion of developmental, operational and interoperability testing on the MC-130J in FY 2021.			
Title: Integrated Tactical Mission Systems (ITMS)	25.502	52.395	52.045

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
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 2020	FY 2021	FY 2022
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 2021 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. 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. Continue Tactical Flight Management System (TFMS), Defensive Countermeasures Suite (DCM), auto route replanner development integration and test on the MC-130J. Begin capability replication, performance, and test on the AC-130J. ***FY 2022 Plans:*** Continues to identify, prototype, and demonstrate modern OMS capabilities of: Pre-mission software, common roll-on roll-off payload interfaces, enhanced cybersecurity management software, and AC-130J weapons management and planning system interface definition. Continues capability maturation of production and fielded software services through Security Development Operations (SecDevOps). Develops, deploys, and matures cloud-hosted distributed software integration and test environment as part of the agile software framework. Continues development of common interfaces and integrates legacy and on-going mission systems into an inter-operable system architecture. Continues TFMS, Automated Route Replanner, and DCM AC/MC-130J capability development and integration. Continues capability replication, performance, and test on the AC-130J to incorporate PSP. Completes NextGen SMP development, qualification testing, technical data updates, and perform correction of deficiencies. Completes Tactical Map development. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $0.350 million is due to new and continuing ITMS development, integration and test efforts.			
Accomplishments/Planned Programs Subtotals	28.094	55.083	52.045

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• PROC/2012C130J: *AC/MC-130J*	143.232	153.914	205.216	-	205.216	-	-	-	-	-	-
• PROC/1202PSP: *Precision Strike Package*	232.599	233.111	165.224	-	165.224	-	-	-	-	-	-

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 2022 United States Special Operations Command			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MC-130J Airborne Mission Networking (AbMN)	C/CPFF	Sierra Nevada Corporation : Centennial, CO	20.363	1.659	Dec 2019	1.264	Dec 2020	-		-		-	0.000	23.286	-
Integrated Tactical Mission System (ITMS) - AC/MC-130J Systems Interoperability & Tactical Map Enhancements	C/Various	Sierra Nevada Corporation : Nevada	38.877	6.157	Nov 2019	5.436	Dec 2020	5.374	Dec 2021	-		5.374	Continuing	Continuing	-
ITMS - MC-130J Software Capability Development	C/CPFF	Lockheed Martin Aeronautics : Marietta	1.500	4.252	Apr 2020	10.870	Feb 2021	11.150	Nov 2021	-		11.150	Continuing	Continuing	-
ITMS - Open Mission System (OMS) Capabilities	C/Various	Various : Various	1.511	4.732	Nov 2019	3.624	Nov 2020	3.762	Dec 2021	-		3.762	Continuing	Continuing	-
ITMS - AC-130J Software Capability Development	C/Various	Various : Various	-	-		9.670	May 2021	8.353	Mar 2022	-		8.353	Continuing	Continuing	-
ITMS - Agile Software Framework Dev & Test	C/Various	Various : Various	-	-		7.034	Jan 2021	6.986	Mar 2022	-		6.986	Continuing	Continuing	-
ITMS - NextGen Special Mission Processor (SMP) Development, Integration & Test	C/Various	Various : Various	3.800	4.419	Nov 2019	1.200	Dec 2020	1.075	Dec 2021	-		1.075	Continuing	Continuing	-
		Subtotal	66.051	21.219		39.098		36.700		-		36.700	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Tactical Mission System (ITMS) - Support	C/Various	Various : Various	-	2.249	Apr 2020	2.718	Mar 2021	3.494	Mar 2022	-		3.494	Continuing	Continuing	-
		Subtotal	-	2.249		2.718		3.494		-		3.494	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 United States Special Operations Command			Date: May 2021
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) S875 / *AC/MC-130J*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MC-130J AbMN Integration &Test	Sub Allot	USSOCOM Detachment 1 Joint Test Interoperability Command : Eglin AFB, FL	1.369	0.933	Dec 2019	1.424	Dec 2020	-		-		-	0.000	3.726	-
ITMS - Test & Integration	Sub Allot	USSOCOM Detachment 1 : Eglin AFB, FL	-	3.693	Dec 2019	11.843	Jan 2021	11.851	Jan 2022	-		11.851	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	C/Various	Lockheed Martin : Atlanta, GA	0.808	-		-		-		-		-	0.000	0.808	-
		Subtotal	2.177	4.626		13.267		11.851		-		11.851	Continuing	Continuing	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	68.228	28.094		55.083		52.045		-		52.045	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

Airborne Mission Networking (AbMN) Schedule

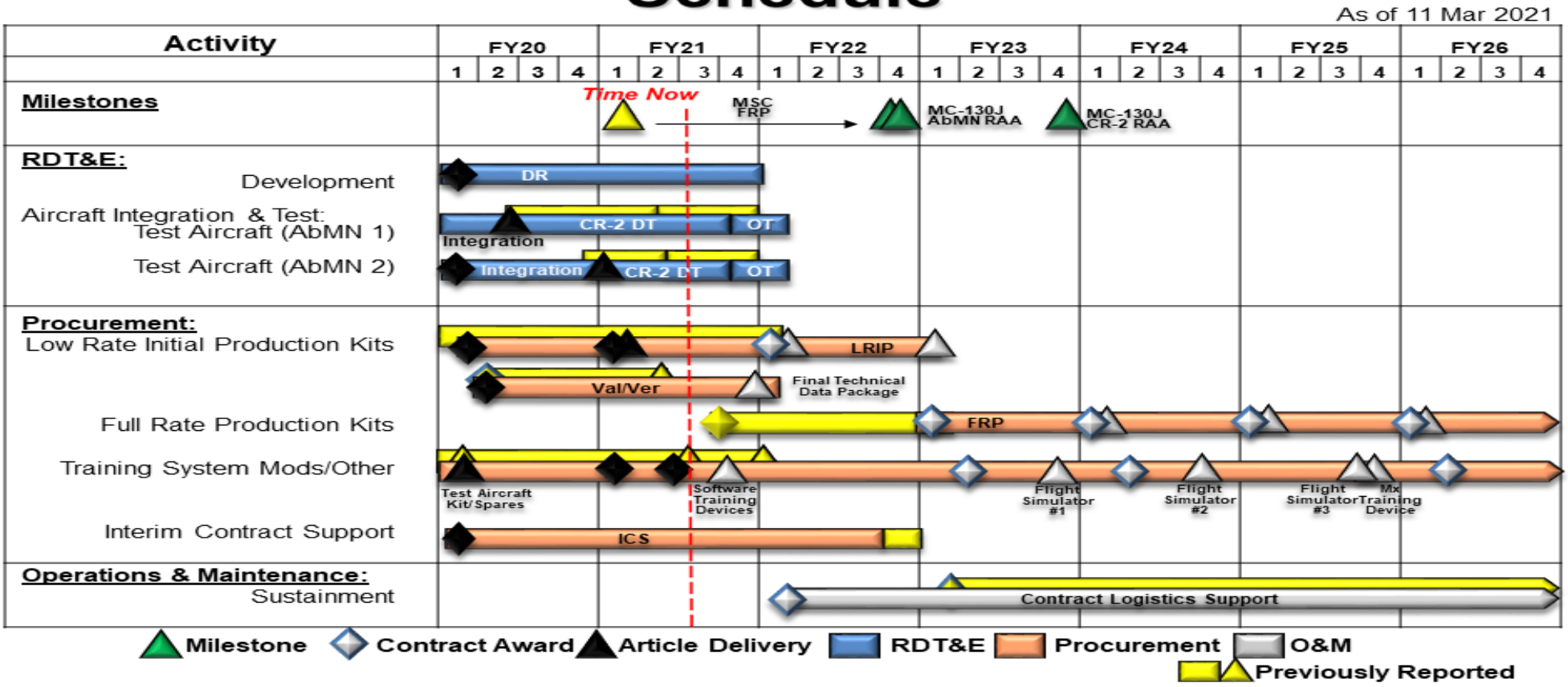

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

Integrated Tactical Mission Systems (ITMS) Schedule

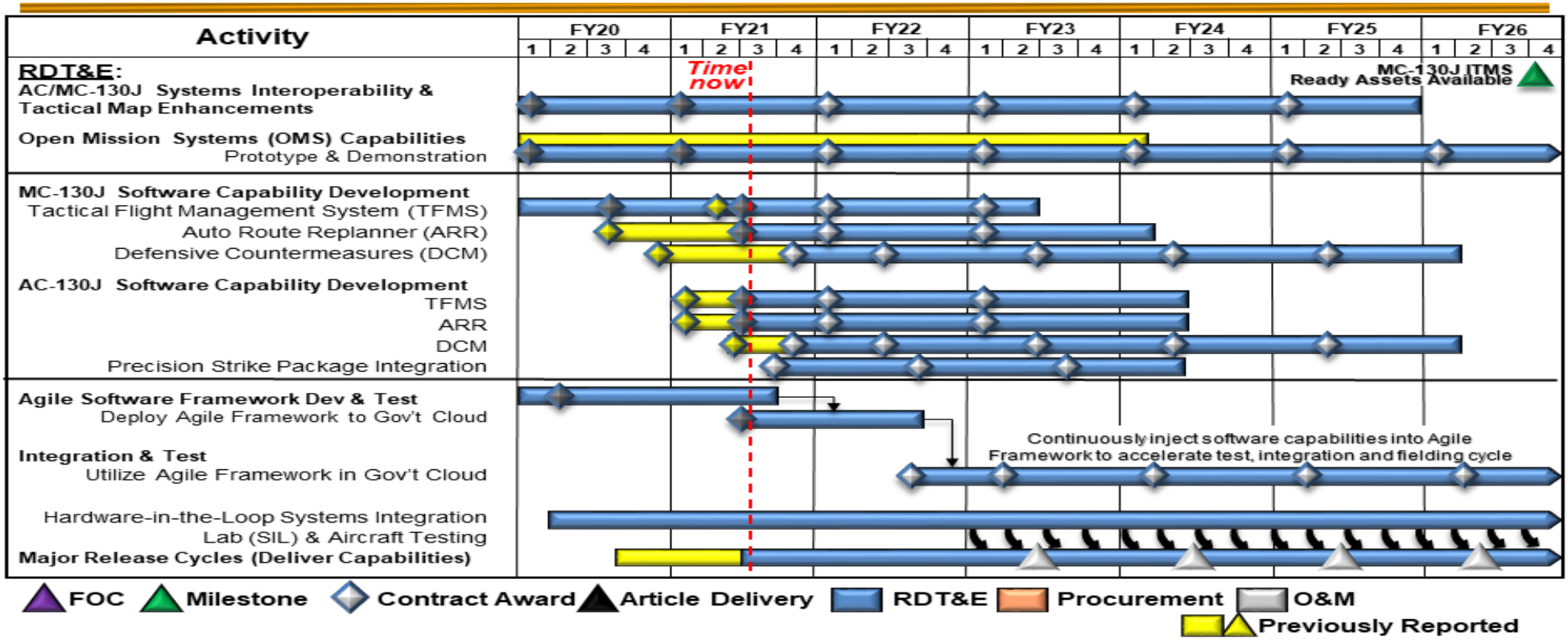

Exhibit R-4A, RDT&E Schedule Details: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MC-130J Airborne Mission Networking (AbMN)				
Engineering and Manufacturing Development	1	2020	4	2021
Phase II Design	1	2020	2	2020
Phase III Integration & Test (Includes Tech Data, Aircraft Integration, & Testing)	1	2020	1	2022
Integrated Tactical Mission Systems (ITMS) Agile Based Software Integration & Test				
AC/MC-130J Systems Interoperability	1	2020	4	2025
Open Mission System (OMS) capabilities Prototype and Demonstration	1	2020	4	2026
MC-130J Tactical Flight Management System (TFMS)	1	2020	2	2023
MC-130J Auto Route Replanner (ARR)	2	2021	2	2024
MC-130J Defensive Countermeasures (DCM)	4	2021	2	2026
AC-130J TFMS	3	2021	2	2024
AC-130J ARR	3	2021	2	2024
AC-130J DCM	3	2021	2	2026
AC-130J Precision Strike Package	3	2021	2	2024
OMS Agile Software Development & Test	1	2020	3	2022
Test & Integration of ITMS Capabilities	3	2022	4	2026
Hardware-in-the-Loop Systems Integration Lab (SIL) & Aircraft Testing	1	2020	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command			Date: May 2021
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) D615 / *Rotary Wing Aviation*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
D615: *Rotary Wing Aviation*	254.252	44.152	41.864	42.787	-	42.787	-	-	-	-	-	-
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 2020	FY 2021	FY 2022
Title: A/MH-6M Block 3.0 Upgrade	3.580	2.783	2.728
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 2021 Plans: Begin software updates to incorporate communications upgrades and 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 2022 Plans: Continues software updates to incorporate communications upgrades and 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 2021 to FY 2022 Increase/Decrease Statement: Decrease of $0.055 million was made available to support emerging critical command requirements.			
Title: MH-60M Modifications and Upgrades	6.272	3.428	2.824
Description: Develop critical technologies for MH-60 Block 2.0 safety, performance, and integration of the Army-common Improved Turbine Engine (ITE). The ITE program decreases operational costs, and transitions MH-60M engine sustainment back			

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
to a service common program. Block 2.0 initiatives include, but are not limited to, Performance Restoration, 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, improved lethality, and enhanced aircraft self-protection in the Multi-Domain Operations (MDO) environment and against near peer threats. The MH-60 Block Upgrades provide the development, integration, and qualification efforts for the MH-60 helicopter to include flight test support, engineering analysis, documentation, and airworthiness substantiation. ***FY 2021 Plans:*** Complete testing of Joint Air-to-Ground Missile (JAGM) software and continue payload restoration efforts, and other technologies to improve safety and decrease operational costs to aircraft survivability equipment, weapons systems improvement and munitions. ***FY 2022 Plans:*** Begins testing and integration of Standoff Precision Guided Munitions (SOPGM) software and continues payload restoration efforts and other technologies to improve safety and decrease operational costs to aircraft survivability equipment, weapons systems improvement and munitions. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $0.604 million due to completion of JAGM testing.			
Title: Degraded Visual Environment (DVE) ***Description:*** The DVE solution will provide MH-47/60 aircrews with visual cues for obstacle avoidance and aircraft control during all phases of flight and significantly increase crew and passenger survivability in DVE. This program addresses SOF-unique requirements for rapid fielding and weight limitations, and capitalizes integration of SOF-unique avionics with the unique skills of the SOF aviator. ***FY 2021 Plans:*** Complete airworthiness release documentation for fielding. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $4.048 million is due to completion of airworthiness release documentation.	2.397	4.048	-
Title: Future Vertical Lift (FVL) ***Description:*** Provides for the development of United States Special Operations Command (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-	1.160	3.324	9.059

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
common development of a joint FVL aircraft by injecting USSOCOM requirements and equities into the initial development and design efforts to minimize SOF-unique modifications to the common aircraft. ***FY 2021 Plans:*** Continue 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 2022 Plans:*** Provides for delta cost design analysis of SOF Future Long Range Assault Aircraft (FLRAA) and Future Attack and Reconnaissance Aircraft (FARA); initiates FLRAA Structural Baseline support efforts and engineering analysis for Modular Open System Architecture (MOSA) implementation of Radio Frequency Countermeasures, TF/TA, Infrared Countermeasures, and DVE; continues SOF FLRAA configuration analysis. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase of $5.735 million is due to cost design analysis of SOF FLRAA and FARA aircraft, FLRAA Structural Baseline support efforts and MOSA implementation of SOF peculiar mission equipment.			
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 system 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 2021 Plans:*** Continue advanced flare testing. Complete development and qualification testing of IR exhaust suppressor for the A/MH-6 aircraft. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $0.625 million is due to completion of IR exhaust suppressor development.	2.288	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), weight reduction, and performance improvement developments. This sub-project also includes modifications to Aircraft Survivability Equipment (ASE) and weapons systems to counter rapidly emerging threats and enhance aircraft self-protection.	8.806	8.455	3.949

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Continue APAS development, including integration with MH-47G subsystems, such as Common Avionics Architecture System (CAAS). ***FY 2022 Plans:*** Completes APAS development, including integration with MH-47G subsystems, such as CAAS, and execution of a configuration study of performance related improvements. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $4.506 million is due to completion of APAS development.			
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 2021 Plans:*** Continue exploration of the next generation ARSOA cockpit, to include architectures studies/development and individual enabling/ enhancing technologies. ***FY 2022 Plans:*** Continues exploration of the next generation ARSOA cockpit, to include architectures studies/development and individual enabling/enhancing technologies. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase of $0.934 million is due to the exploration of next generation tactical communication technologies.	0.140	0.588	1.522
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 Radio Frequency (RF) environment. This effort will enable the aircrew to use advanced radio waveforms and communications equipment that can survive and thrive in contested	-	3.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
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 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:*** Begin to develop software and hardware to rapidly incorporate advanced waveforms, advanced communications, and networking hardware onto the ARSOA aircraft. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $3.000 million was made available to support emerging critical Command requirements.			
Title: ASE Radio Frequency Countermeasures (RFCM) Upgrades	11.794	15.613	22.705
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 2021 Plans:*** Continue development of new systems, P3I/upgrades of fielded survivability equipment, and continues development of countermeasures. Additional details can be provided under separate cover. ***FY 2022 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 2021 to FY 2022 Increase/Decrease Statement:*** Increase of $7.092 million is due to ASE upgrades. Additional details can be provided under separate cover.			
Accomplishments/Planned Programs Subtotals	36.437	41.864	42.787

	FY 2020	FY 2021
Congressional Add: Future Vertical Lift (FVL)	7.715	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

	FY 2020	FY 2021
FY 2020 Accomplishments: Provides engineering and design work to ensure SOF-unique requirements are incorporated in the baseline Army aircraft. The program has awarded task orders to Bell and Lockheed Martin through TDD for SOF-FARA variant engineering studies, funded FVL FLRAA engineering studies for SOF variants, and awarded contract to GTRI to initiate SOA CAAS / MOSA studies.		
Congressional Adds Subtotals	7.715	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• PROC/0201RWUPGR: *Rotary Wing Upgrades and Sustainment*	177.483	211.041	202.278	-	202.278	-	-	-	-	-	-
• 0201MH60: *MH-60 Blackhawk*	25.264	-	29.900	-	29.900	-	-	-	-	-	-
• 0601MH47: *MH-47 Chinook*	201.093	135.482	130.485	-	130.485	-	-	-	-	-	-

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 Collins Aerospace. 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 Special Operations Forces Support Activity (SOFSA).

• 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 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.

Exhibit R-2A, RDT&E Project Justification: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

• IRCM integrates a mission configurable Missile Warning System and IRCM capability at a weight suitable for the A/MH-6M 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, weight reduction, and performance improvement developments. 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 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.

• IRES RDT&E funds not required due to maturity of selected COTS solution; funds realigned to Degraded Visual Environment System enhancements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Degraded Visual Environment (DVE)	C/Various	PM TAPO : Fort Eustis, VA	69.748	2.397	Apr 2020	4.048	Jun 2021	-		-		-	0.000	76.193	-
Future Vertical Lift (FVL)	C/Various	PM TAPO : Ft. Eustis, VA	-	-		2.991	Dec 2020	8.396	Dec 2021	-		8.396	Continuing	Continuing	-
FVL Congressional Add (Cong Add)	C/Various	PM TAPO : Ft. Eustis, VA	-	7.356	Sep 2020	-		-		-		-	0.000	7.356	-
MH-47 Modifications and Upgrades	C/Various	PM TAPO : Fort Eustis, VA	41.931	8.806	Nov 2019	8.455	Nov 2020	3.949	Nov 2021	-		3.949	Continuing	Continuing	-
Tactical (Airborne) Mission Networking (TMN)	C/Various	PM TAPO : Fort Eustis, VA	-	-		3.000	Mar 2021	-		-		-	Continuing	Continuing	-
Aircraft Survivability Equipment (ASE) Radio Frequency Countermeasures (RFCM) Upgrades	C/Various	PM TAPO : Fort Eustis, VA	16.439	11.794	Mar 2020	15.613	Mar 2021	22.705	Mar 2022	-		22.705	Continuing	Continuing	-
Prior Years Funding	C/Various	PM MELB : Fort Eustis, VA	49.820	-		-		-		-		-	0.000	49.820	-
		Subtotal	177.938	30.353		34.107		35.050		-		35.050	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FVL	C/Various	PM TAPO : Fort Eustis, VA	4.053	1.160	Aug 2020	0.333	Nov 2021	0.663	Nov 2021	-		0.663	Continuing	Continuing	-
FVL (Cong Add)	C/Various	PM TAPO : Fort Eustis, VA	-	0.359	Sep 2020	-		-		-		-	0.000	0.359	-
		Subtotal	4.053	1.519		0.333		0.663		-		0.663	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 United States Special Operations Command			Date: May 2021
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) D615 / *Rotary Wing Aviation*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	32.036	3.580	Jan 2020	2.783	Apr 2021	2.728	Jan 2022	-		2.728	Continuing	Continuing	-
MH-60M Modification and Upgrades	C/Various	PM TAPO : Fort Eustis, VA	7.577	6.272	Mar 2020	3.428	Apr 2021	2.824	Mar 2022	-		2.824	Continuing	Continuing	-
Infrared Countermeasures Integration and Testing (IRCM)	C/Various	PM TAPO : Fort Eustis, VA	12.663	2.288	Feb 2020	0.625	May 2021	-		-		-	0.000	15.576	-
Mission Processor Upgrades (MPU)	C/Various	PM TAPO : Fort Eustis, VA	0.862	0.140	Apr 2020	0.588	Apr 2021	1.522	Apr 2022	-		1.522	Continuing	Continuing	-
Prior Years Funding	C/Various	Various : Various	19.123	-		-		-		-		-	0.000	19.123	-
		Subtotal	72.261	12.280		7.424		7.074		-		7.074	Continuing	Continuing	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	254.252	44.152		41.864		42.787		-		42.787	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

A/MH-6 Program Schedule

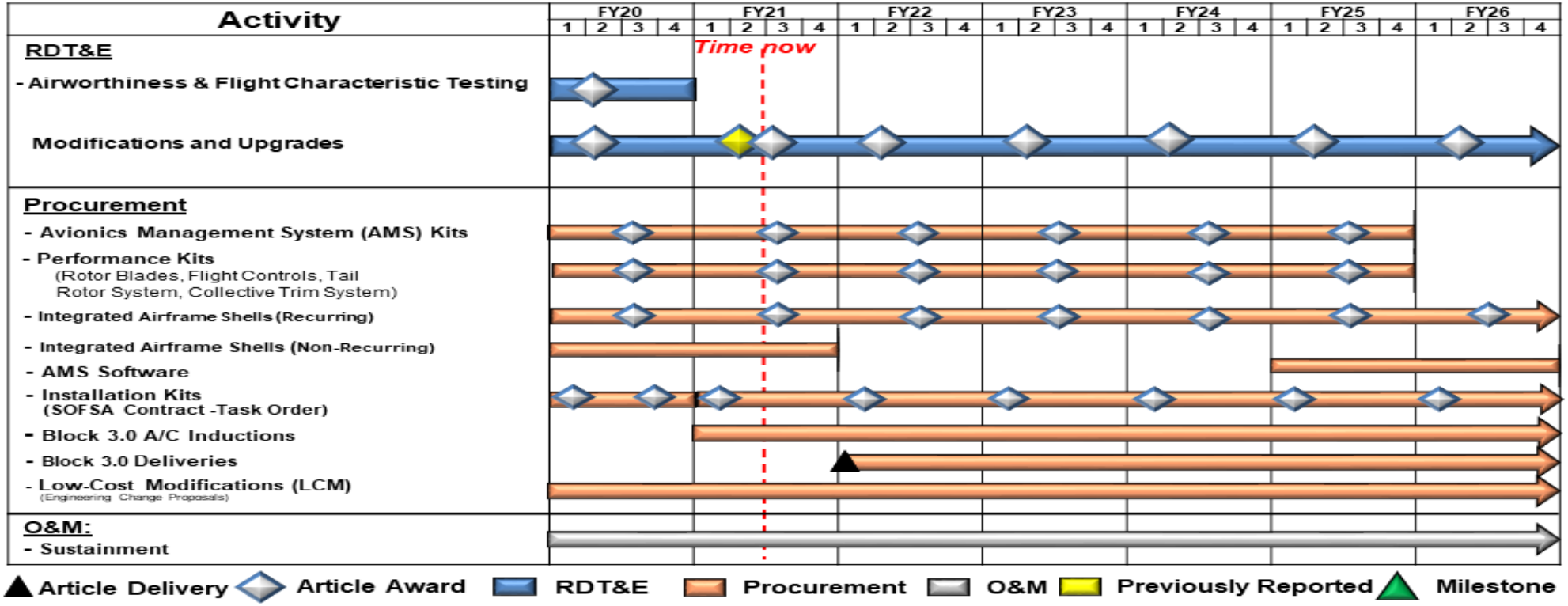

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

MH-60M Program Schedule

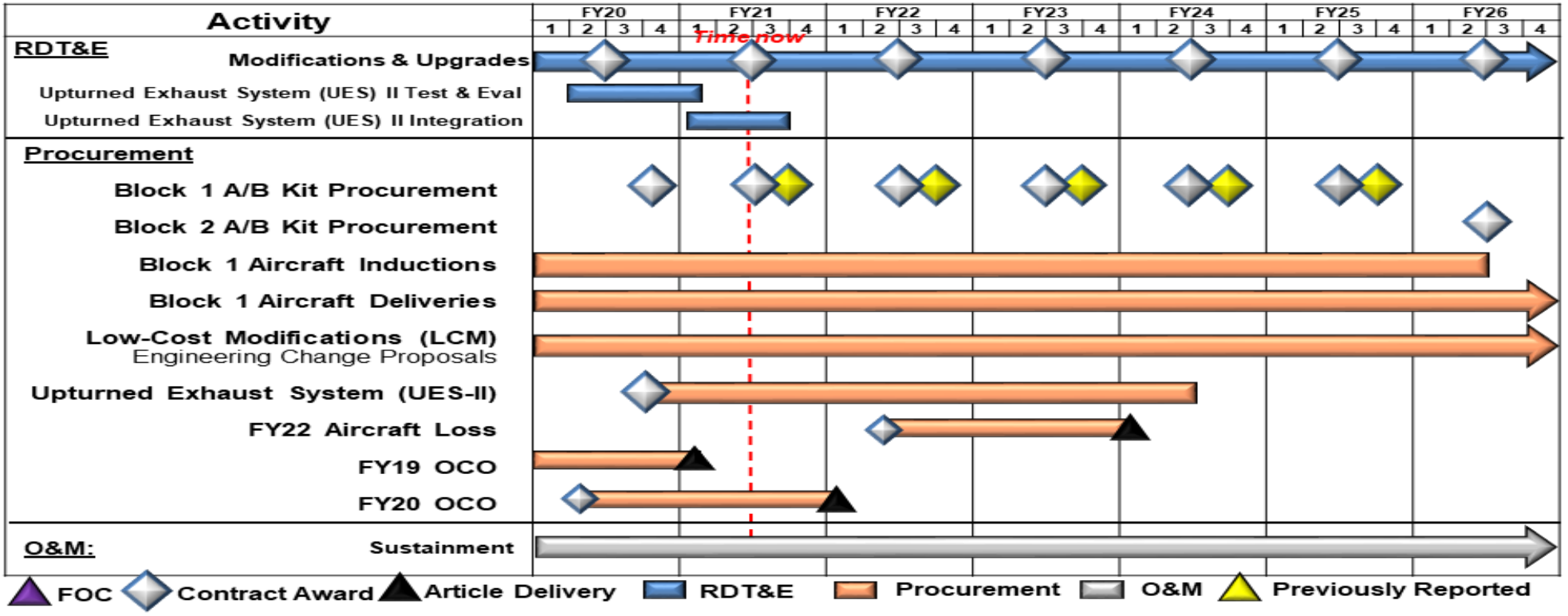

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Degraded Visual Environment (DVE) Schedule

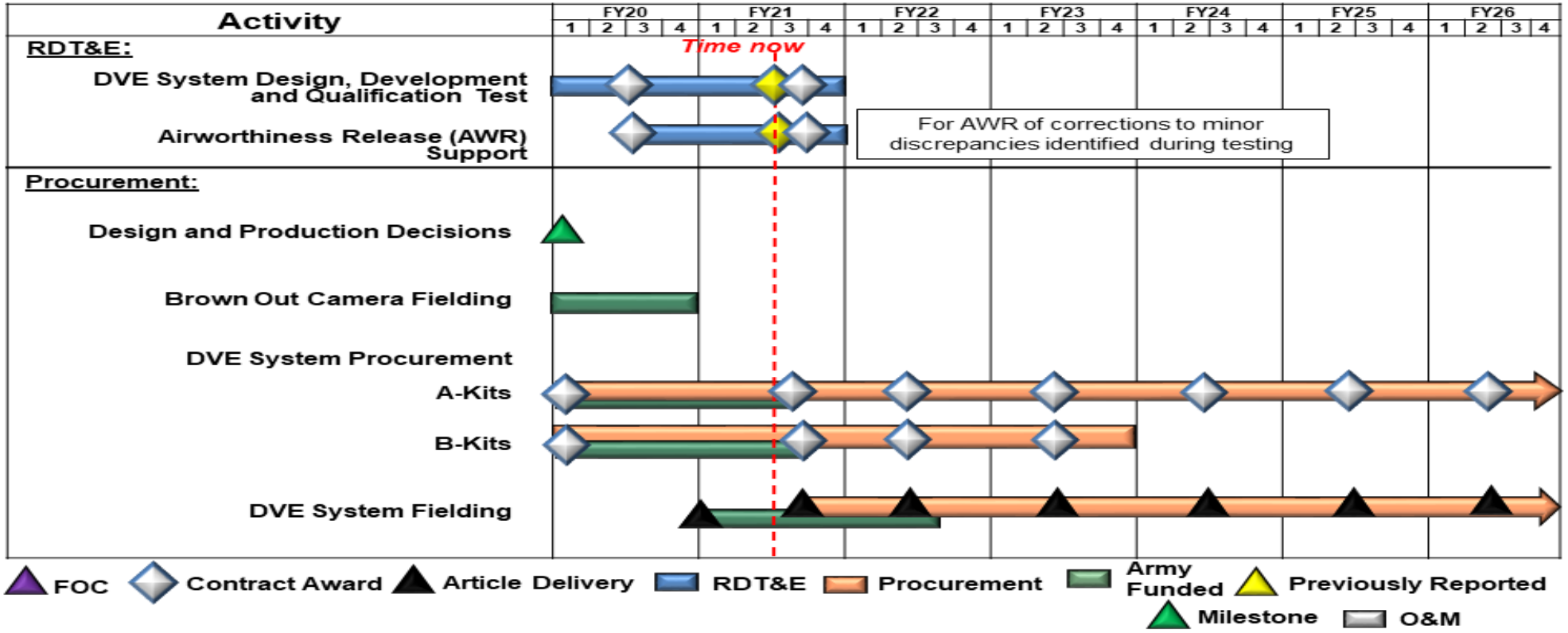

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Future Vertical Lift Schedule

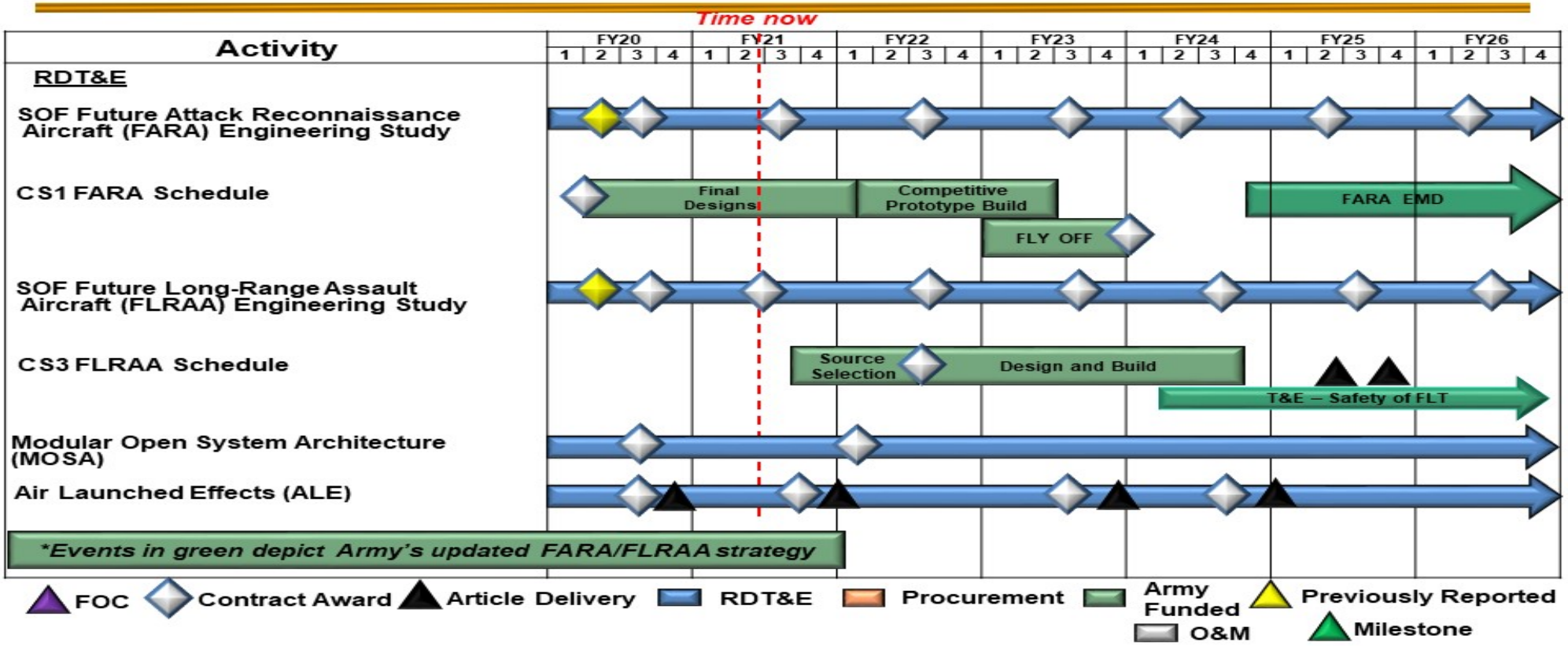

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

MH-47 Program Schedule

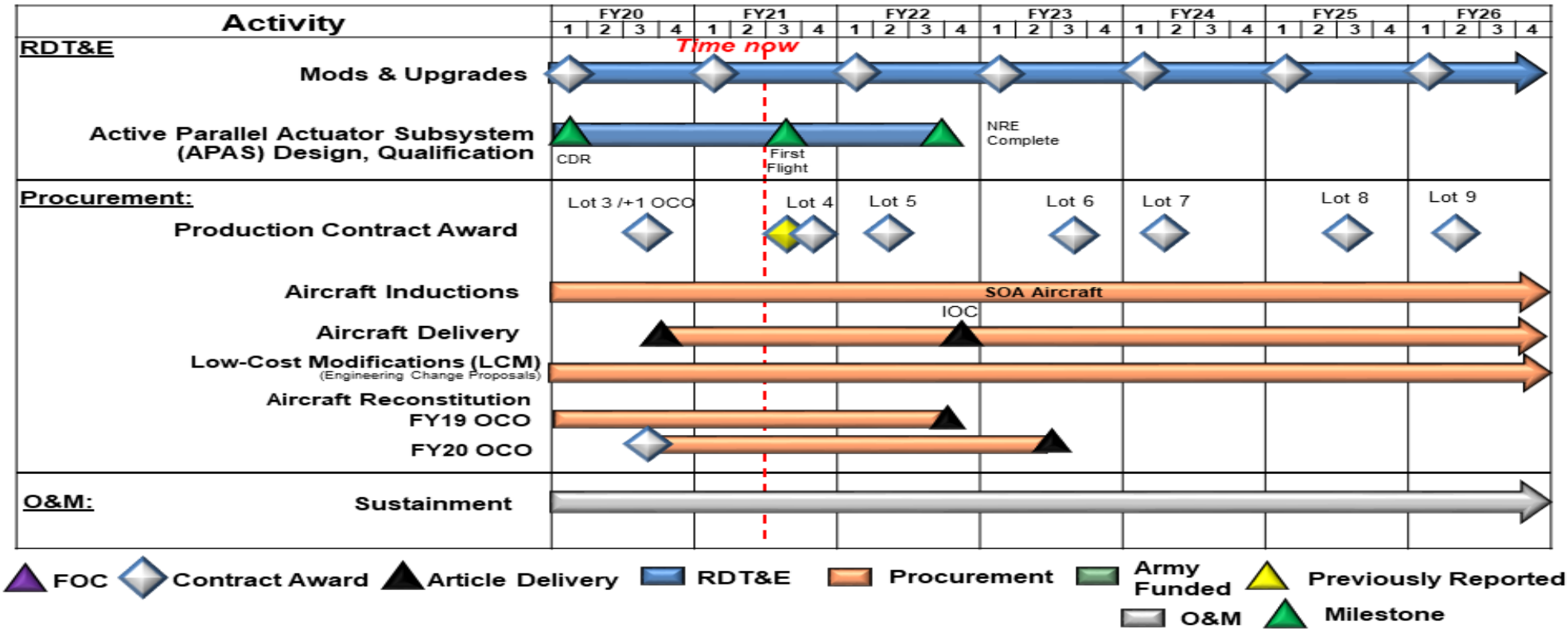

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Mission Processor Upgrades Schedule

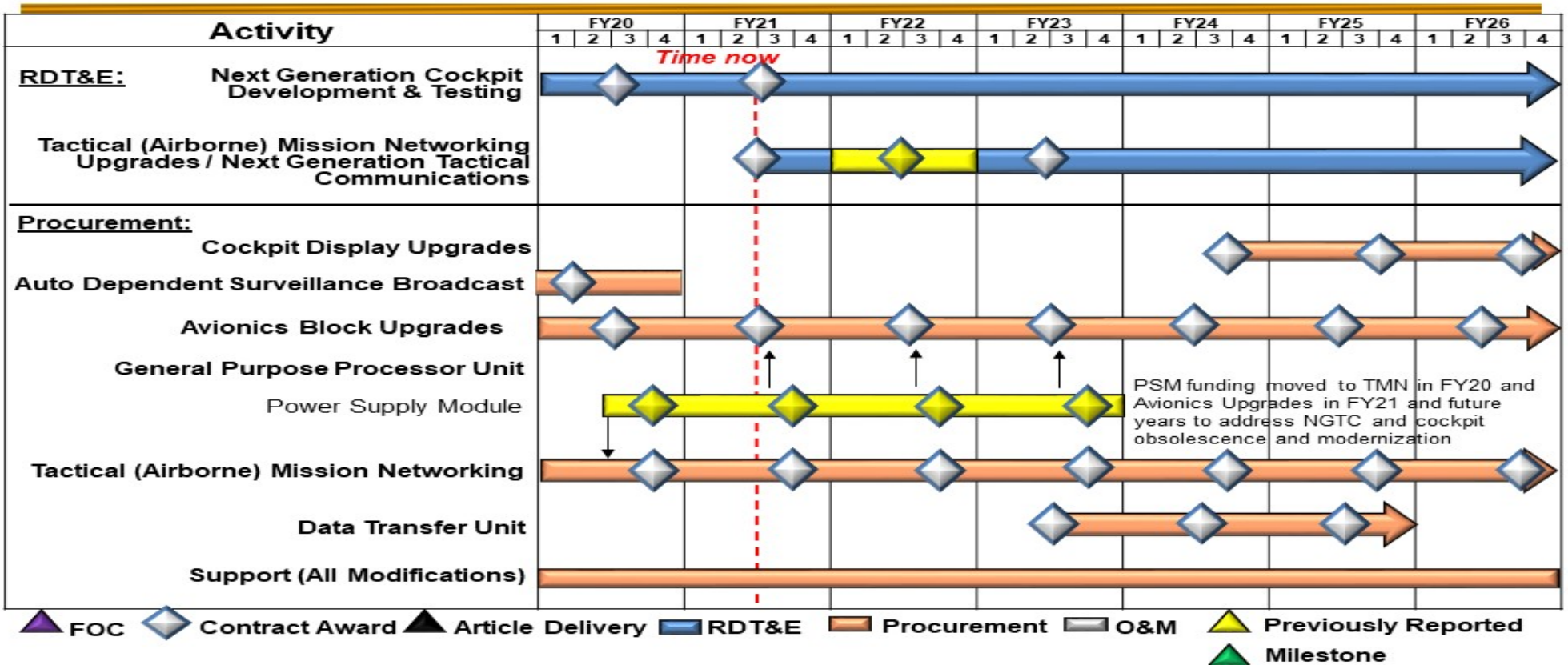

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Aircraft Survivability Equipment (ASE) Infrared Countermeasures (IRCM) Schedule

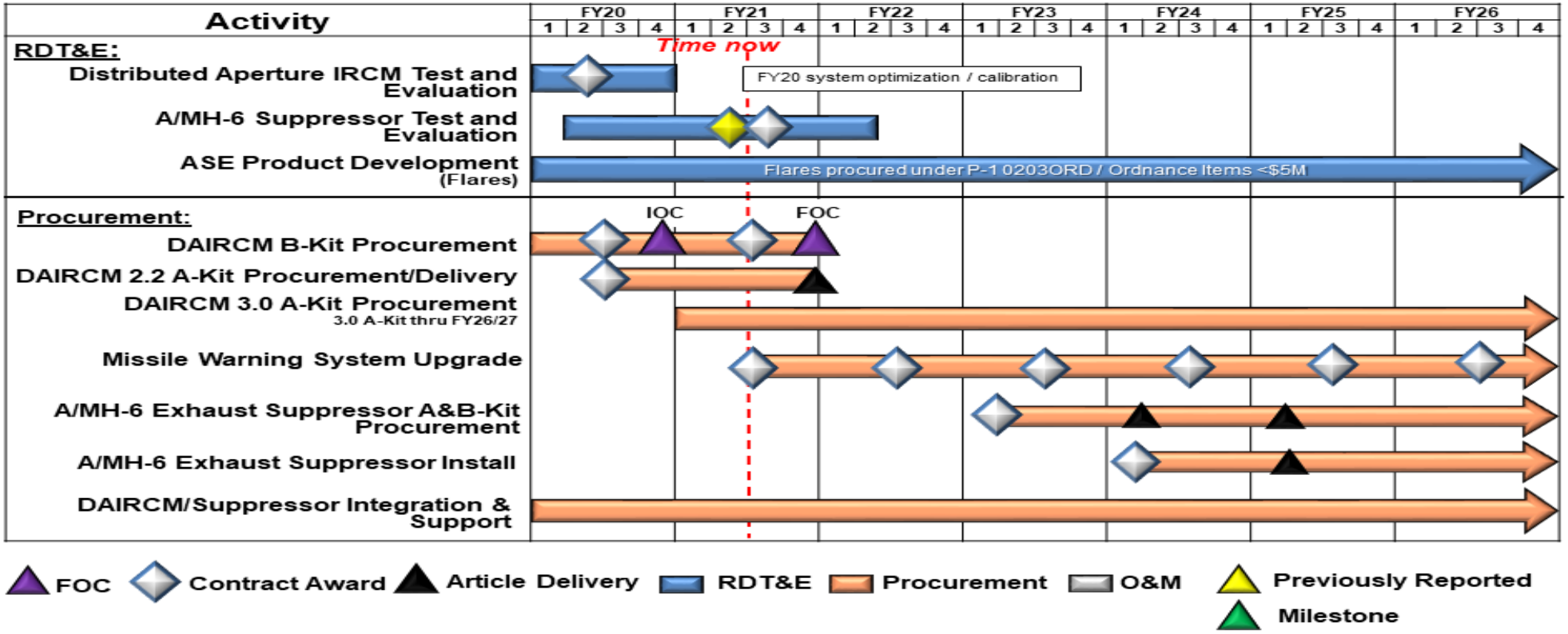

Exhibit R-4, RDT&E Schedule Profile: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Aircraft Survivability Equipment (ASE) Radio Frequency Countermeasures (RFCM) Schedule

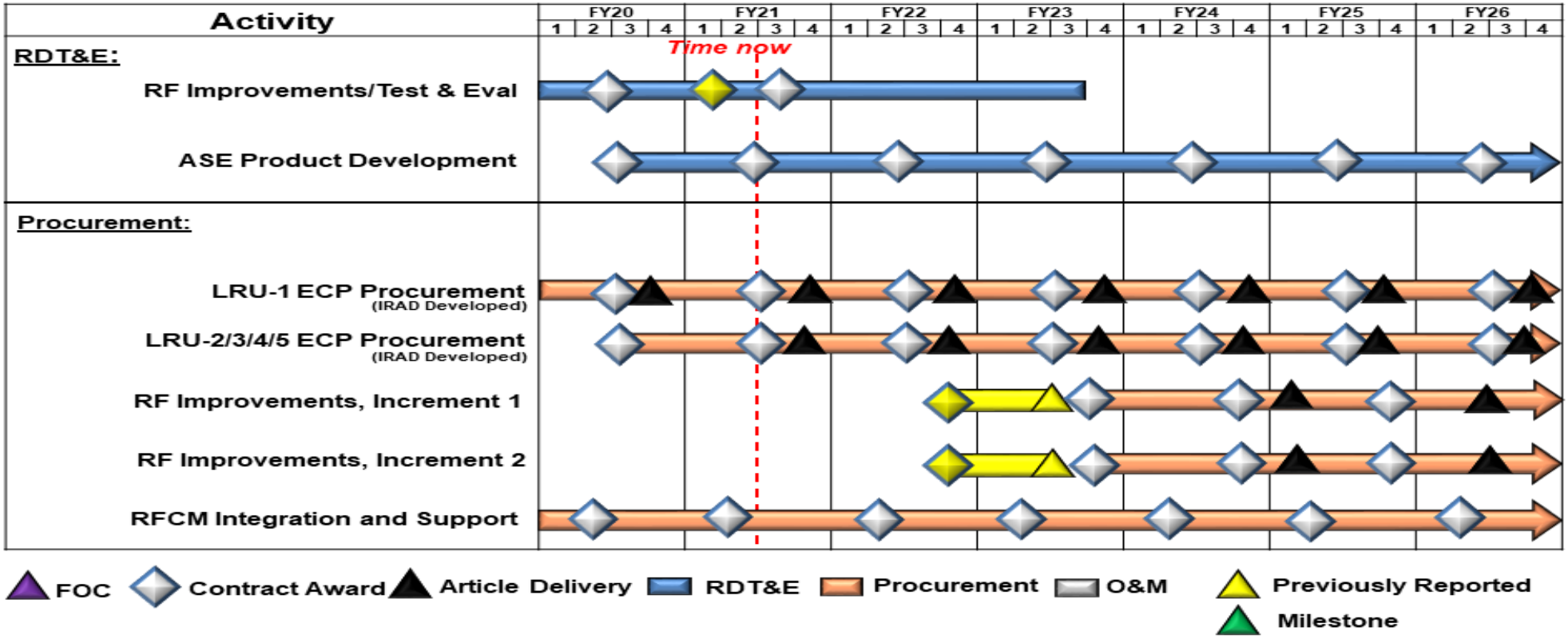

Exhibit R-4A, RDT&E Schedule Details: PB 2022 United States Special Operations Command		Date: May 2021
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

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	1	2020	4	2020
Modifications and Upgrades	1	2020	4	2026
MH-60M Modifications and Block Upgrades				
Modifications and Upgrades	1	2020	4	2026
Upturned Exhaust System (UES) II Test & Eval	2	2020	1	2021
UES II Integration	1	2021	3	2021
Degraded Visual Environment (DVE)				
Design, Development, and Qualification Test	1	2020	4	2021
Airworthiness Release (AWR) Support	3	2020	4	2021
Future Vertical Lift (FVL)				
SOF Future Attack Reconnaissance Aircraft (FARA) Engineering Study	1	2020	4	2026
SOF Future Long-Range Assault Aircraft (FLRAA) Engineering Study	1	2020	4	2026
Modular Open Systems Architecture	1	2020	4	2026
Air Launched Effects	1	2020	4	2026
MH-47 Program				
Modifications and Upgrades	1	2020	4	2026
Active Parallel Actuator Subsystem (APAS) Design, Qualification	1	2020	3	2022
Mission Processor Upgrades (MPU)				
Next Generation Cockpit Development and Testing	1	2020	4	2026
Tactical (Airborne) Mission Networking Upgrades / Next Generation Tactical Communications	2	2021	4	2026
Aircraft Survivability Equipment (ASE) Infrared Countermeasures (IRCM)				

Exhibit R-4A, RDT&E Schedule Details: PB 2022 United States Special Operations Command		Date: May 2021
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**
Distributed Aperture Infrared Countermeasure Test and Evaluation	1	2020	4	2020
A/MH-6 Suppressor Test and Evaluation	1	2020	2	2022
ASE Product Development (Flare)	1	2020	4	2026
Aircraft Survivability Equipment (ASE) Radio Frequency Countermeasures (RFCM)				
RF Improvements Test and Evaluation	1	2020	4	2023
ASE Product Development	3	2020	4	2026