Department of Defense
Fiscal Year (FY) 2020 Budget Estimates

March 2019

United States Special Operations Command

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Department of Defense
FY 2020 President's Budget
Exhibit R-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Research, Development, Test & Eval, DW	716,362	585,623	27,097	612,720
Total Research, Development, Test & Evaluation	716,362	585,623	27,097	612,720

R-120PB: FY 2020 President's Budget (Published Version), as of February 25, 2019 at 09:37:37

Department of Defense
FY 2020 President's Budget
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(Dollars in Thousands)

25 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Research, Development, Test & Eval, DW	808,595		11,726	11,726	820,321
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Department of Defense
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Summary Recap of Budget Activities	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Applied Research	33,375	35,921		35,921
Advanced Technology Development	92,311	79,380		79,380
Operational System Development	590,676	470,322	27,097	497,419
Total Research, Development, Test & Evaluation	716,362	585,623	27,097	612,720

Summary Recap of FYDP Programs				
Intelligence and Communications	5,488	6,286		6,286
Special Operations Forces	710,874	579,337	27,097	606,434
Total Research, Development, Test & Evaluation	716,362	585,623	27,097	612,720

Department of Defense
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Summary Recap of Budget Activities	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)
Applied Research	40,569				40,569
Advanced Technology Development	89,154				89,154
Operational System Development	678,872		11,726	11,726	690,598
Total Research, Development, Test & Evaluation	808,595		11,726	11,726	820,321
Summary Recap of FYDP Programs					
Intelligence and Communications	6,359				6,359
Special Operations Forces	802,236		11,726	11,726	813,962
Total Research, Development, Test & Evaluation	808,595		11,726	11,726	820,321

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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	Sec
22	1160401BB	SOF Technology Development	02	33,375	35,921		35,921	U
		Applied Research		33,375	35,921		35,921	
68	1160402BB	SOF Advanced Technology Development	03	92,311	79,380		79,380	U
		Advanced Technology Development		92,311	79,380		79,380	
235	0305208BB	Distributed Common Ground/Surface Systems	07	5,488	6,286		6,286	U
254	1105219BB	MQ-9 UAV	07	33,106	18,403		18,403	U
255	1160279BB	Small Business Innovative Research/ Small Bus Tech Transfer Pilot Prog	07	23,371				U
256	1160403BB	Aviation Systems	07	250,604	175,862		175,862	U
257	1160405BB	Intelligence Systems Development	07	8,837	10,625		10,625	U
258	1160408BB	Operational Enhancements	07	73,734	99,307	3,632	102,939	U
259	1160431BB	Warrior Systems	07	74,169	63,542	11,040	74,582	U
260	1160432BB	Special Programs	07	2,300	2,479		2,479	U
261	1160434BB	Unmanned ISR	07	33,576	33,270	11,700	44,970	U
262	1160480BB	SOF Tactical Vehicles	07	2,483	1,121	725	1,846	U
263	1160483BB	Maritime Systems	07	66,280	42,471		42,471	U
264	1160489BB	Global Video Surveillance Activities	07	4,661	4,780		4,780	U
265	1160490BB	Operational Enhancements Intelligence	07	12,067	12,176		12,176	U
		Operational System Development		590,676	470,322	27,097	497,419	

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		Advanced Technology Development		89,154				89,154	
235	0305208BB	Distributed Common Ground/Surface Systems	07	6,359				6,359	U
254	1105219BB	MQ-9 UAV	07	20,697				20,697	U
255	1160279BB	Small Business Innovative Research/ Small Bus Tech Transfer Pilot Prog	07						U
256	1160403BB	Aviation Systems	07	245,795				245,795	U
257	1160405BB	Intelligence Systems Development	07	15,484				15,484	U
258	1160408BB	Operational Enhancements	07	166,922		726	726	167,648	U
259	1160431BB	Warrior Systems	07	62,332		6,000	6,000	68,332	U
260	1160432BB	Special Programs	07	21,805				21,805	U
261	1160434BB	Unmanned ISR	07	37,377		5,000	5,000	42,377	U
262	1160480BB	SOF Tactical Vehicles	07	11,150				11,150	U
263	1160483BB	Maritime Systems	07	72,626				72,626	U
264	1160489BB	Global Video Surveillance Activities	07	5,363				5,363	U
265	1160490BB	Operational Enhancements Intelligence	07	12,962				12,962	U
		Operational System Development		678,872		11,726	11,726	690,598	

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Program Element Table of Contents (by Budget Activity then Line Item Number)

Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

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Program Element Table of Contents (Alphabetically by Program Element Title)

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 2: *Applied Research*	**R-1 Program Element (Number/Name)** PE 1160401BB / *SOF Technology Development*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	519.229	33.375	35.921	40.569	-	40.569	46.674	49.695	50.725	51.907	Continuing	Continuing
S100: *SOF Technology Development*	519.229	33.375	35.921	40.569	-	40.569	46.674	49.695	50.725	51.907	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element enables USSOCOM to conduct studies and develop laboratory prototypes for applied research and advanced technology development, as well as leverage other organizations' technology projects that may not otherwise be affordable within MFP-11. Applying small incremental amounts of investments to Department of Defense (DOD), other government agencies, and commercial organizations allows USSOCOM to influence the direction of technology development or the schedule against which it is being pursued, and to acquire emerging technologies for Special Operations Forces. This project provides an investment strategy for USSOCOM to link technology opportunities with capability deficiencies, capability objectives, technology thrust areas, human endurance and sensory performance, and technology development objectives.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	34.493	35.921	40.757	-	40.757
Current President's Budget	33.375	35.921	40.569	-	40.569
Total Adjustments	-1.118	0.000	-0.188	-	-0.188
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.118	-			
• Other Adjustments	-	-	-0.188	-	-0.188

Change Summary Explanation

Funding:

FY 2018: Decrease of $1.118 million is due to a transfer to Small Business Innovative Research/Small Business Technology Transfer programs.

FY 2019: None.

FY 2020: Decrease of $0.188 million due to minor adjustments.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 2: *Applied Research*	**R-1 Program Element (Number/Name)** PE 1160401BB / *SOF Technology Development*

Schedule: None.

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 2	R-1 Program Element (Number/Name) PE 1160401BB / *SOF Technology Development*	Project (Number/Name) S100 / *SOF Technology Development*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S100: *SOF Technology Development*	519.229	33.375	35.921	40.569	-	40.569	46.674	49.695	50.725	51.907	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project conducts studies and develops laboratory prototypes for applied research and advanced technology developments, and leverages other organizations' technology projects that may not otherwise be affordable within MFP-11. Small incremental co-investments with DOD, other government agencies, and commercial organizations allow USSOCOM to influence the schedule and direction of technology developments, emerging technologies, and capabilities for Special Operations Forces (SOF), with significant economies of investment. This USSOCOM investment strategy is used to link technology opportunities with USSOCOM capability deficiencies, capability objectives; technology thrust areas, and technology objectives. Technology development needs in these areas may be advertised to industry and government research and development agencies via agency announcements and calls for white papers.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: SOF Technology Development	14.603	16.421	20.967
Description: This project conducts studies and develops laboratory prototypes for applied research and advanced technology developments, and leverages other organizations' technology projects that may not otherwise be affordable within MFP-11. ***FY 2019 Plans:*** Continue ongoing technology development sub-projects in areas such as, but not limited to: long duration small form factor power supplies, alternative fuel power systems, reduced signature technologies, high data-rate throughput, and advance lightweight armor and materials. Advance technologies for combat medical equipment, tactics, human performance, sensor and processing improvements, improve interfaces and displays, machine learning/artificial intelligence, and secure communications. Continue pursuit of methods to reduce operator load and provide advanced protection. Develop technologies for improved and widened window of target engagement (escalation of force), pursue enhancements to technologies that can aid in detection of enemy intentions and movement, and continue development and exploration across the electromagnetic spectrum. Based upon agreed technology maturity metrics, transfer successful projects into programs of record. Continue the integration of critical technologies focused on providing the dismounted special operator leap-ahead capabilities via innovative collaborative processes. Focus is on delivering prototype system for soldier protection and augmentation and continuing development of situational awareness and command/control systems. ***FY 2020 Plans:*** Continues ongoing technology development sub-projects in areas such as, but not limited to: enabling power technologies, signature reduction technologies, high data-rate throughput, and advances in lightweight armor and materials. Advances technologies for combat medical equipment, tactics, human performance, optics, sensor and processing improvements,			

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 1160401BB / *SOF Technology Development*	**Project (Number/Name)** S100 / *SOF Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
improves human-machine interfaces and displays, identifies SOF specific machine learning/artificial intelligence, and secure communications. Continues pursuit of methods to reduce operator load and provides advanced protection. Develops technologies for improved and widened window of target engagement (escalation of force), pursues enhancements to technologies that can aid in detection of enemy intentions and status, and continues development and exploration of novel technologies across the electromagnetic spectrum. Based upon agreed technology maturity metrics, transfers successful projects into programs of record. Continues the integration of critical technologies focused on providing the dismounted special operator leap-ahead capabilities via innovative collaborative processes. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $4.546 million due to increased focus on identifying disruptive technology development efforts to support SOF needs.			
Title: Tagging, Tracking, and Locating Technologies (TTL) ***Description:*** TTL funds Applied Research projects identified in the USSOCOM Quick Look Capabilities Based Assessments (QL-CBA). TTL applies Intelligence, Surveillance, and Reconnaissance (ISR) focused leading edge technology, biometric and biotechnology, which is directed towards the development of revolutionary tags, taggants, sensors, communications, and data processing in support of the TTL mission. ***FY 2019 Plans:*** Continue projects to exploit technology, biotechnology and chemistry for application to TTL and TTL-enabling systems. Initiate projects linked to the USSOCOM/DOD TTL and ISR Roadmaps, which are updated via the JCS/J8-approved annual TTL QL-CBA. ***FY 2020 Plans:*** Continues projects to exploit technology, biotechnology and chemistry for application to TTL and TTL-enabling systems. Continues projects linked to the USSOCOM/DOD TTL and ISR Roadmaps, which are updated via the JCS/J8-approved annual TTL QL-CBA. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.391 million due to inflation and other minor adjustments.	14.877	15.565	15.956
Title: Classified Sub-Project ***Description:*** Classified Sub-Project (provided under separate cover). ***FY 2019 Plans:*** Details provided under separate cover. ***FY 2020 Plans:***	3.895	3.935	3.646

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 2	**R-1 Program Element (Number/Name)** PE 1160401BB / *SOF Technology Development*	**Project (Number/Name)** S100 / *SOF Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Details provided under separate cover. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Details provided under separate cover.			
Accomplishments/Planned Programs Subtotals	33.375	35.921	40.569

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 1160402BB / *SOF Advanced Technology Development*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	1,284.836	92.311	79.380	89.154	-	89.154	100.729	107.219	109.410	111.962	Continuing	Continuing
S200: *Advanced Technology Development*	1,241.979	73.772	57.648	66.960	-	66.960	78.150	84.159	85.874	87.877	Continuing	Continuing
SF101: *Engineering Analysis*	23.099	14.285	17.140	17.595	-	17.595	17.870	18.236	18.612	19.046	Continuing	Continuing
S225: *Information and Broadcast Systems Adv Tech*	19.758	4.254	4.592	4.599	-	4.599	4.709	4.824	4.924	5.039	Continuing	Continuing

A. Mission Description and Budget Item Justification

Advanced Technology Development (project S200) conducts rapid prototyping and Advanced Technology Demonstrations (ATDs). ATDs provide a means for demonstrating and evaluating the utility of emerging/advanced technologies in as realistic an operational environment as possible by Special Operations Forces (SOF) users. Evaluation results are included in a transition package, which assists in the initiation of or insertion into an acquisition program. ATDs also address projects that are a result of unique joint special mission or area-specific needs for which a few-of-a-kind prototypes must be developed on a rapid response basis, or are of sufficient time sensitivity to accelerate the prototyping effort of a normal acquisition program in any phase.

Engineering Analysis (project SF101) provides rapid response capability for the investigation, evaluation, and demonstration of technologies for SOF platform (ground, air, and maritime) and soldier system-unique requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: sensor integration; enhanced situational awareness; near-real-time intelligence to include data fusion, threat detection and avoidance; electronic support measures for threat geo-location and specific emitter identification; navigation; target detection; weapon performance integration; and future SOF platform and soldier system requirements. Provides additional engineering analysis and testing required to transition items from national forces to theater forces.

Information and Broadcast Systems Advanced Technology (project S225) conducts rapid prototyping, advanced technology demonstrations, and advanced concept technology demonstrations of information and broadcast systems technology. Includes planning, analyzing, evaluating, and production information systems capabilities and distribution/dissemination broadcast systems capabilities. It provides a means for demonstrating and evaluating the utility of emerging/advanced technologies in as realistic an operational environment as possible by SOF users. This project also integrates efforts with each other and conducts technology demonstrations in conjunction with joint experiments and other assessment events. Evaluation results are included in a transition package, which assists in the initiation of or insertion into an acquisition program. The project also addresses unique, joint special mission or area-specific needs for which prototypes must be developed on a rapid response basis, or are of sufficient time sensitivity to accelerate the prototyping effort of a normal acquisition program in any phase.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 1160402BB / *SOF Advanced Technology Development*

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	72.605	79.380	89.565	-	89.565
Current President's Budget	92.311	79.380	89.154	-	89.154
Total Adjustments	19.706	0.000	-0.411	-	-0.411
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	23.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.009	-			
• SBIR/STTR Transfer	-3.285	-			
• Other Adjustments	-	-	-0.411	-	-0.411

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Project: S200: *Advanced Technology Development*		
Congressional Add: *S200: SOST Identity Threat Mitigation Research*	17.339	-
Congressional Add: *S200: SOST Tactical Assault Lightweight Operator Suit (TALOS)*	4.817	-
Congressional Add Subtotals for Project: S200	22.156	-
Congressional Add Totals for all Projects	22.156	-

Change Summary Explanation

Funding:

FY 2018: Net increase of $19.706 million is due to a decrease for transfer of funds to Small Business Innovative Research/Small Business Technology Transfer programs (-$3.285 million), Congressional adds of $18.000 million for Identity Threat Mitigation Research, $5.000 million for TALOS and a minor reprogramming (-$0.009 million).

FY 2019: None.

FY 2020: Decrease of $0.411 million due to minor adjustments.

Schedule: None.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 1160402BB *I SOF Advanced Technology Development*

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1160402BB / *SOF Advanced Technology Development*	Project (Number/Name) S200 / *Advanced Technology Development*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S200: *Advanced Technology Development*	1,241.979	73.772	57.648	66.960	-	66.960	78.150	84.159	85.874	87.877	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project provides for rapid prototyping, Advanced Technology Demonstrations (ATDs) and Joint Capability Technology Demonstrations. It is a means for demonstrating and evaluating the utility of emerging/advanced technologies in operationally relevant environments with Special Operations Forces (SOF) users. This project integrates emerging technologies and presents them in technology demonstrations, in conjunction with joint experiments and other assessment events. Evaluation results often facilitate the initiation of new programs and the insertion of appropriate technologies to acquisition programs. The element also addresses unique, joint special mission or area-specific needs for which a few rapid prototypes must be developed on a responsive basis, or are of sufficient time sensitivity to accelerate prototyping efforts of a normal acquisition program in any phase.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: SOF Special Technology Sub-Project	28.899	33.046	41.118
Description: This sub-project integrates emerging technologies and presents them in technology demonstrations, in conjunction with joint experiments and other assessment events. This project received two congressional adds in FY 2018.			
FY 2019 Plans: Continue the development and insertion of technology into existing programs. Technologies include, but are not limited to: reduced signature profiles, improved weapons, communications, command, and control systems, machine learning/artificial intelligence, sensors, and situational awareness tools; lightweight armor and materials, alternative power systems, eco-friendly sustainable energy devices, long duration, reduced size, high output power supplies, and technologies that reduce the load of the operator. Continue development of technologies supporting undersea, air and ground mobility. Evaluate and develop sensors across the electromagnetic spectrum to meet operational requirements. Continue the integration of critical technologies focused on providing the dismounted special operator leap-ahead capabilities via innovative collaborative processes. Continue developing unique robotic systems to reduce the load of the operator and augment human performance. Continue to develop Command, Control, Communications, Computers, and Intelligence (C4I) Technology to implement a robust, ultra-wideband communication capability. Continue effort for field prototype system incorporating technologies likely to transition to fielded systems. Based upon agreed technology maturity metrics, transfers successful projects into programs of record, and conduct field experimentations at various venues to facilitate technology insertion.			
FY 2020 Plans: Continues the development and insertion of technology into existing programs. Technologies include, but are not limited to: reduced signature profiles, improved tailorable lethality weapons, assured communications, command and control systems,			

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 1160402BB / *SOF Advanced Technology Development*	**Project (Number/Name)** S200 / *Advanced Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
machine learning/artificial intelligence, optics, sensors, and situational awareness tools; lightweight armor and materials, power and energy enablers, and technologies that reduce the load of the operator. Continues development of technologies supporting undersea, ground and air mobility. Evaluates and develops sensors across the electromagnetic spectrum to meet operational requirements. Continues the integration of critical technologies focused on providing the dismounted special operator leap-ahead capabilities via innovative collaborative processes. Continues to develop C4I technology to provide tactically relevant situational awareness and point of need. Continues effort for field prototype system incorporating technologies likely to transition to fielded systems. Based upon agreed technology maturity metrics, transfers successful projects into programs of record, and conducts field experimentations at various venues to facilitate technology insertion. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $8.072 million due to a focus on tactically relevant situational awareness, communication and navigation in all environments, tailored lethality and biotechnologies to support SOF needs.			
Title: Tagging, Tracking, and Locating Technologies (TTL) Sub-Project ***Description:*** TTL funds SOF unique ATDs identified in the USSOCOM Quick Look Capabilities Based Assessments (QL-CBA). TTL rapidly prototypes and expeditiously transitions projects from laboratory to acquisition Programs of Record/operational use to address SOF capability deficiencies. ***FY 2019 Plans:*** Continue to exploit and integrate recently-proven and emerging technologies for TTL and TTL-enabling systems. Continue to mature technologies that are linked to the USSOCOM/DOD TTL Roadmap, which is updated via the JCS/J8-approved annual TTL QL-CBA. Continue to increase focus on tactical sensors and enabling technologies in support of the special reconnaissance mission set. ***FY 2020 Plans:*** Continues to exploit and integrate recently-proven and emerging technologies for TTL and TTL-enabling systems. Continues to mature technologies that are linked to the USSOCOM/DOD TTL Roadmap, which is updated via the JCS/J8-approved annual TTL QL-CBA. Continues to increase focus on tactical sensors and enabling technologies in support of the special reconnaissance mission set. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $1.165 million to address TTL shortfalls in the maritime and Global Positioning System denied environment.	16.930	18.750	19.915
Title: Classified Sub-Project ***Description:*** Classified Sub-Project (provided under separate cover).	5.787	5.852	5.927

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 1160402BB / *SOF Advanced Technology Development*	**Project (Number/Name)** S200 / *Advanced Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
FY 2019 Plans: Details provided under separate cover. ***FY 2020 Plans:*** Details provided under separate cover. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Details provided under separate cover.			
Accomplishments/Planned Programs Subtotals	51.616	57.648	66.960

	FY 2018	FY 2019
Congressional Add: S200: SOST Identity Threat Mitigation Research ***FY 2018 Accomplishments:*** Continue to exploit and integrate recently-proven and emerging technologies for signature identification and enabling systems. Continue projects towards maturity that are linked to the USSOCOM Directive 530-2. Continue to increase focus on proactive measures to understand, assess, and, when necessary, actively manage signatures to minimize risks to the safety and security of special operations missions and contribute to the operations security of special operations missions.	17.339	-
Congressional Add: S200: SOST Tactical Assault Lightweight Operator Suit (TALOS) ***FY 2018 Accomplishments:*** TALOS is evaluating commercially available exoskeleton technology to assess advancements in exoskeleton design, development and performance to inform requirements for Special Operation Forces (SOF).	4.817	-
Congressional Adds Subtotals	22.156	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 1160402BB / *SOF Advanced Technology Development*	Project (Number/Name) SF101 / *Engineering Analysis*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
SF101: *Engineering Analysis*	23.099	14.285	17.140	17.595	-	17.595	17.870	18.236	18.612	19.046	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project provides a rapid response capability to support Special Operations Forces (SOF) platforms (ground, air and maritime), Unmanned Aerial Vehicle (UAV) payload sensors and soldier systems. The purpose is to correct system deficiencies, improve asset life, and enhance mission capability through the means of feasibility studies, analysis of alternatives, pre-developmental risk reduction studies, and engineering analyses. This project provides the engineering required to improve the design and performance integrity of the SOF platforms, UAV payload sensors and soldier support systems, sub-systems, equipment, and embedded computer software as they relate to the maintenance, overhaul, repair, quality assurance, modifications, materiel improvements, and service life extensions. This project also conducts risk reduction studies, analyses, and demonstrations to support emerging, time-critical weapons and sensor enhancements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Platform Engineering Analysis	10.260	10.483	10.912
Description: Funding supports the development of rapid response capabilities to support SOF platform and soldier systems. Rapidly addresses technology needs for insertion into Programs of Record. Supports technology development to correct system deficiencies, improve platform asset life, and enhance mission capabilities. ***FY 2019 Plans:*** Continue to assess concepts and prototypes that provide increased ballistic protection of air, ground and undersea mobility platforms to include manned and unmanned UAVs, and mobility platform improvements to meet emerging threats. Assess and evaluate advanced precision guided munitions and scalable effects weapons. Identify, assess and evaluate improved Command, Control, Communication, Computer (C4) systems that incorporate significant improvements to operate in contested environments, systems that improve situational awareness on the battlefield, and next generation manned and unmanned Intelligence, Surveillance, and Reconnaissance (ISR) systems and common sensors and sensor suites. ***FY 2020 Plans:*** Continues to assess concepts and prototypes that provide increased capability of air, ground and undersea mobility platforms to include improvements to meet emerging threats. Assesses and evaluates advanced methods to deliver tailorable lethality. Identifies, assesses and evaluates improved C4 systems that incorporate significant improvements to operate in contested environments, systems that improve situational awareness on the battlefield, and disruptive technologies to enable ISR in future environments. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.429 million due to minor adjustments in funding required for individual taskings.			
Title: Soldier System Engineering Analysis	0.478	0.489	0.500

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 1160402BB / *SOF Advanced Technology Development*	**Project (Number/Name)** SF101 / *Engineering Analysis*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Description: Funding supports engineering assessments and evaluation of technology feasibility, producibility, and integration readiness in the following areas: 1) next generation lightweight low-cost body armor and ballistic helmets 2) ballistic and laser variable light transmission protective eyewear 3) soldier worn sensors to assess ballistic and blast events as well as soldier health 4) next generation soldier worn load carriage systems 5) soldier worn head borne communications that provide greater situational awareness and hearing protection. ***FY 2019 Plans:*** Continue to assess advanced body armor and ballistic helmet materials, concepts and prototypes to reduce soldier load and provide increased ballistic protection against the latest emerging threats. Reduce the number of eyewear lenses needed and to have one lens that provides ballistic and laser protection as well as automatically darkens/lightens based on combat conditions. Evaluate soldier worn sensors and heads up displays for operability within soldier worn components and subsystems. Assess technologies feasibility and integration readiness of next generation load carriage systems such as exoskeletons and load-assist devices. Assess proof of concepts and technologies for next generation head borne communications systems that provide reliable and secure wireless transmission in all combat conditions, as well as provide 360 degree situational awareness and noise attenuation while increasing hearing protection. ***FY 2020 Plans:*** Continues to assess materials, concepts and prototypes to reduce soldier load and provide increased protection against the latest emerging threats. Evaluates soldier worn sensors and heads up displays for operability within soldier worn components and subsystems. Assesses technologies feasibility and integration readiness of next generation load carriage systems such as exoskeletons and load-assist devices. Assesses proof of concepts and technologies for next generation communications systems that integrated situational awareness in all environments. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.011 million is due to minor adjustments.			
Title: National to Theater Engineering Analysis ***Description:*** Provides additional engineering analysis and testing required to transition items from national forces to theater forces. ***FY 2019 Plans:*** Conduct additional testing and evaluation required on various equipment items such as communications, intelligence, weapons, and operator protection planned for transition to SOF Theater Forces. ***FY 2020 Plans:***	2.102	2.202	2.236

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 1160402BB / *SOF Advanced Technology Development*	**Project (Number/Name)** SF101 / *Engineering Analysis*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Conducts additional testing and evaluation required on various equipment items such as communications, intelligence, weapons, and operator protection planned for transition to SOF Theater Forces. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.034 million is due to minor adjustments required for testing.			
Title: Aviation Mission Improved Survivability ***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 2019 Plans:*** Continue engineering analysis activities 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. Proof of concepts with potential from prior year will be further matured. ***FY 2020 Plans:*** Continues engineering analysis activities 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. Proof of concepts with potential from prior year will be further matured. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of $0.019 million is due to minor adjustments.	1.445	3.966	3.947
Accomplishments/Planned Programs Subtotals	14.285	17.140	17.595

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 1160402BB / *SOF Advanced Technology Development*	**Project (Number/Name)** S225 / *Information and Broadcast Systems Adv Tech*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S225: *Information and Broadcast Systems Adv Tech*	19.758	4.254	4.592	4.599	-	4.599	4.709	4.824	4.924	5.039	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project conducts development, rapid prototyping, demonstration/testing of information and broadcast system technology. Includes cyber capabilities that predict the best media channels to reach potential target audiences, data mining and information collections tools, propaganda and social behavior analytical tools, cultural analysis tool sets and emerging technologies that support the planning and analytical needs for the Military Information Support Operations (MISO) forces. It provides a means for demonstrating and evaluating the utility of emerging/advanced technologies in as realistic an operational environment as possible by SOF users. This project integrates efforts and conducts technology demonstrations in conjunction with joint experiments and other assessment events and performs market research on emerging technologies that support all phases of MISO. Evaluation results are included in a transition package, which assists in the initiation of or insertion into an acquisition program. The project also addresses unique, joint special mission or area-specific needs. Seeks technologies that will transform current MISO capabilities through two major objectives: 1) Exploit technologies capable of disseminating products to reach target audiences across a variety of media to include audiences in denied areas. 2) Automate and improve MISO planning and analytical capability through technologies that are integrated into SOF planning systems (Cultural Analysis, Targeting, Theme Development, Media & Product Selection, Distribution & Dissemination, and Measures of Effectiveness). Develops software applications that increases the efficiency and shortens the timeline to get MISO dissemination packages approved. Develops hardware/software tools that facilitate the collaboration and sharing of information and other critical data.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Broadcast and Dissemination Modernization	4.254	4.592	4.599
Description: Develops emerging technologies available in the marketplace to transform and modernize planning, analysis, development, broadcast, distribution, dissemination, and feedback capabilities for MISO forces. This initiative will also continue development of appropriate emerging technologies initially identified by Advance Technology Demonstrations and Joint Capability Technology Demonstrations to transition to acquisition programs. Technologies include: multi-frequency broadcast systems; digital broadcast capabilities; remote controlled electronic paper; near-real-time command and control of unattended systems, especially in denied areas; focused/beam speaker sound technologies; visual projection technologies; advanced commercial broadcast technologies including amplitude modulation and frequency modulation radio transmitters and antenna; television transmitter and antenna systems; internet and telephony dissemination and broadcast systems; technologies capable of long-loiter broadcast and delivery in denied and permissive environment; and technologies that automate and improve planning and analytical capability through integrated capabilities.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 1160402BB / *SOF Advanced Technology Development*	**Project (Number/Name)** S225 / *Information and Broadcast Systems Adv Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Continue performance of engineering studies, development, and demonstrations of planning, analysis, distribution, and broadcast capabilities in the digital domain. ***FY 2020 Plans:*** Continues performance of engineering studies, development, and demonstrations of planning, analysis, distribution, and broadcast capabilities in the digital domain. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.007 million is due to minor adjustments.			
Accomplishments/Planned Programs Subtotals	4.254	4.592	4.599

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305208BB / *Distributed Common Ground/Surface Systems*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	43.226	5.488	6.286	6.359	-	6.359	6.487	6.621	6.757	6.915	Continuing	Continuing
S400A: *Distributed Common Ground/Surface Systems*	43.226	5.488	6.286	6.359	-	6.359	6.487	6.621	6.757	6.915	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element is part of the Military Intelligence Program (MIP). The Distributed Common Ground/Surface System Special Operations Forces (DCGS-SOF) is part of a family of systems providing Intelligence, Surveillance, and Reconnaissance Processing, Exploitation, Dissemination (PED), and analytical capabilities at the Component/TSOC level and below through a combination of reach back, forward support, and collaboration. The mission tailored infrastructure interconnects the warfighters, analysts, and sensors to find and fix High Value Targets and provides a network-enabled, interoperable construct allowing continual, unimpeded sharing of intelligence data, information and services with SOF and between the Services, other national intelligence agencies, combatant commands and multi-national partners. It connects the SOF warfighters and support analysts with essential intelligence information and provides situational awareness information to SOF leadership at all echelons. The three components of DCGS-SOF include the following: The Enterprise All Source Information Fusion (ENT/ASIF) provides infrastructure, processing and intelligence analytical tools capabilities to allow for worldwide SOF intelligence information sharing via a globally connected cloud based architecture as well as a forward disconnected capability. SOF Geospatial Intelligence Processing Exploitation, and Dissemination (SGIP) provides capabilities in garrison and deployed environments of manned and unmanned sensors. SOF Signals Intelligence (SIGINT) Processing, Exploitation, Dissemination (PED) provides SIGINT exploitation capability in both garrison and deployed environments. Middle-Tier Acquisition (2016 NDAA Section 804) to accommodate rapid prototyping, may be utilized.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	5.496	6.286	6.388	-	6.388
Current President's Budget	5.488	6.286	6.359	-	6.359
Total Adjustments	-0.008	0.000	-0.029	-	-0.029
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.008	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.029	-	-0.029

Change Summary Explanation

Funding:

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305208BB *I Distributed Common Ground/Surface Systems*

FY 2018: Decrease of -$0.008 is due to a minor reprogramming.

FY 2019: None.

FY 2020: Decrease of -$0.029 is due to minor adjustments.

Schedule: Market research results and the pivot to the National Reconnaissance Office (NRO) Fusion Analysis and Development Effort (FADE) platform modifies technology development objectives and timelines.

Technical: Usability testing and requirements refinement led to market research and technology shift to partner with NRO to utilize their fielded Government/ Commercial off the Shelf FADE system after making SOF enhancements.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305208BB / *Distributed Common Ground/Surface Systems*	Project (Number/Name) S400A / *Distributed Common Ground/ Surface Systems*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S400A: *Distributed Common Ground/Surface Systems*	43.226	5.488	6.286	6.359	-	6.359	6.487	6.621	6.757	6.915	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program element is part of the Military Intelligence Program (MIP). The Distributed Common Ground/Surface System Special Operations Forces (DCGS-SOF) is part of a family of systems providing Intelligence, Surveillance and Reconnaissance (ISR) Processing, Exploitation, Dissemination (PED), and analytical capabilities at the Component/TSOC level and below through a combination of reach back, forward support, and collaboration. The mission tailored infrastructure interconnects the warfighters, analysts, and sensors to find and fix High Value Targets and provides a network-enabled, interoperable construct allowing continual, unimpeded sharing of intelligence data, information and services with SOF and between the Services, other national intelligence agencies, combatant commands and multi-national partners. It connects the SOF warfighters and support analysts with essential intelligence information and provides situation awareness information to SOF leadership at all echelons. The three components of DCGS-SOF include the following: The Enterprise All Source Information Fusion (ENT/ASIF) provides infrastructure, processing and intelligence analytical tools capabilities to allow for worldwide SOF intelligence information sharing via a globally connected cloud based architecture as well as a forward disconnected capability. SOF Geospatial Intelligence Processing Exploitation, and Dissemination (SGIP) provides capabilities in garrison and deployed environments of manned and unmanned sensors. SOF Signals Intelligence (SIGINT) Processing, Exploitation, Dissemination (PED) provides SIGINT exploitation capability in both garrison and deployed environments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: DCGS	5.488	6.286	6.359
FY 2019 Plans: Continue integration of emerging technologies and enhanced capabilities for ENT/ASIF in partnership with Fusion Analysis Development Effort (FADE) such as: Advanced analytics, user interface (UI), natural language processing (NLP), cloud, language translations and disconnected operations into the DCGS-SOF baseline. Continues refining and integration of SOF SIGINT PED/ SGIP emerging technologies and capabilities such as: over-watch/compound monitoring, develop analyst trip wire tools, next generation analytics processing, upgrading imaging and video exploitation tools, patterns of movement characterization and detection for single mission, upgrade speech to text capabilities. Continues DCGS-SOF Limited Objective Events and exercise participation to test integration efforts. Continues development of the interoperability with Coalition partners, Defense Intelligence Information Environment (DI2E), and Joint Information Environment.			
FY 2020 Plans: Continues development of rapid prototyping and integration of emerging technologies and enhanced capabilities for DCGS-SOF requirements such as: Advanced analytics, UI, NLP, cloud, language translations and deliver disconnected operations capability into the DCGS-SOF baseline. Continues refining and integration of SOF SIGINT PED/SGIP emerging technologies			

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305208BB / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** S400A / *Distributed Common Ground/ Surface Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
and capabilities such as: over-watch/compound monitoring, develop analyst trip wire tools, next generation analytics processing, upgrading imaging and video exploitation tools, patterns of movement characterization and detection for single mission, upgrade speech to text capabilities. Continues DCGS-SOF Limited Objective Events and exercise participation to test integration efforts. Continues development of the interoperability with Coalition partners, DI2E, and Joint Information Environment. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.073 million due to inflation and other minor adjustments.			
Accomplishments/Planned Programs Subtotals	5.488	6.286	6.359

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/020401INTL: *Distributed Common Ground/Surface System*	15.685	17.863	12.522	-	12.522	11.645	13.677	14.690	15.117	Continuing	Continuing

Remarks

D. Acquisition Strategy

DCGS-SOF leverages SOF programs, DoD and Intelligence Community partners, National labs, and other Government Agencies to integrate Commercial Off The Shelf /Government Off The Shelf (COTS/GOTS), and other mature technologies into the Program of Record which will reside partially within the SOF Information Enterprise combined with Web-Client tools in a global cloud. These alliances enable more agile access to (searchable, discoverable) and sharing of larger data domains and services to meet SOF-peculiar documented requirements. The technology allows for seamless integration and federation with DoD, Interagency, and Coalition tactical Intelligence, Surveillance and Reconnaissance (ISR) PED systems. The DCGS-SOF program office employs an agile development process with capability insertions into the development baseline for assessment and future deployment into the operational baseline. All development requirements are prioritized through the DCGS Requirements Working Group (DRWG) chaired by J2. Once approved, the requirements are evaluated and scheduled by engineering development teams for SOF and National Reconnaissance Office (NRO) FADE. Using this methodology allows capabilities to be inserted in a fast and agile manner based on user requirements and priorities. All evolutionary technology insertions (ETIs) in the R-4 schedule are based on current program office projections. If requirements change based on the DRWG, the ETI and version capabilities identified may change.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305208BB / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** S400A / *Distributed Common Ground/ Surface Systems*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Capabilities Modernization - SOF Geospatial Intelligence Processing Exploitation, and Dissemination (SGIP)	Various	Various : Various	15.847	0.734	Jan 2018	0.749	Jan 2019	2.500	Jan 2020	-		2.500	Continuing	Continuing	-
Development and Integration - Enterprise / All Source Information Fusion (ENT/ASIF)	Various	Various : Various	8.347	2.301	Jan 2018	2.347	Jan 2019	1.459	Jan 2020	-		1.459	Continuing	Continuing	-
Independent Verification and Validation - SOF Signals Intelligence Processing Exploitation, and Dissemination (SOF SIGINT PED)	MIPR	MITRE : Bedford, MA	1.725	0.295	Mar 2018	0.301	Mar 2019	0.615	Mar 2020	-		0.615	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	1.788	-		-		-		-		-	0.000	1.788	-
		Subtotal	27.707	3.330		3.397		4.574		-		4.574	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Support	C/FFP	SITEC : Various	4.138	0.939	Mar 2018	1.646	Mar 2019	0.259	Mar 2020	-		0.259	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	0.576	-		-		-		-		-	0.000	0.576	-
		Subtotal	4.714	0.939		1.646		0.259		-		0.259	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305208BB / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** S400A / *Distributed Common Ground/ Surface Systems*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	MIPR	SPAWAR : Charleston, SC	1.956	-		-		0.854	Oct 2019	-		0.854	Continuing	Continuing	-
Independent Verification and Validation	MIPR	MITRE : Bedford, MA	2.880	0.295	Oct 2017	0.295	Oct 2018	0.210	Oct 2019	-		0.210	Continuing	Continuing	-
Interoperability Support	MIPR	JITC : Ft Huachuca, AZ	1.639	0.221	Feb 2018	0.225	Feb 2019	0.232	Feb 2020	-		0.232	Continuing	Continuing	-
Interoperability Testing	C/FFP	SITEC : Various	4.330	0.703	Mar 2018	0.723	Mar 2019	0.230	Mar 2020	-		0.230	Continuing	Continuing	-
		Subtotal	10.805	1.219		1.243		1.526		-		1.526	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	43.226	5.488		6.286		6.359		-		6.359	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305208BB / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** S400A / *Distributed Common Ground/ Surface Systems*

DCGS-SOF
ENTERPRISE/ ALL SOURCE INFORMATION FUSION (ENT/ASIF)

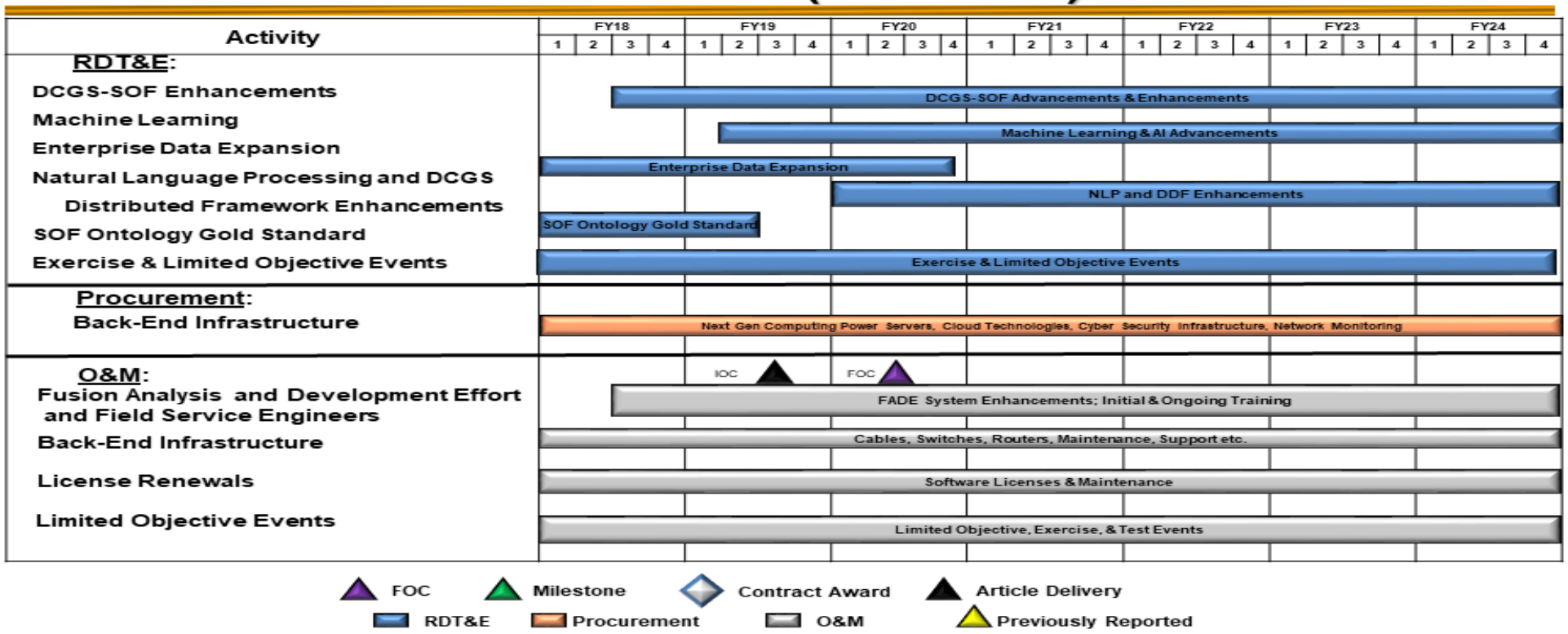

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305208BB / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** S400A / *Distributed Common Ground/ Surface Systems*

DCGS-SOF
SOF GEOSPATIAL INTELLIGENCE PROCESSING, EXPLOITATION, & DISSEMINATION (SGIP)

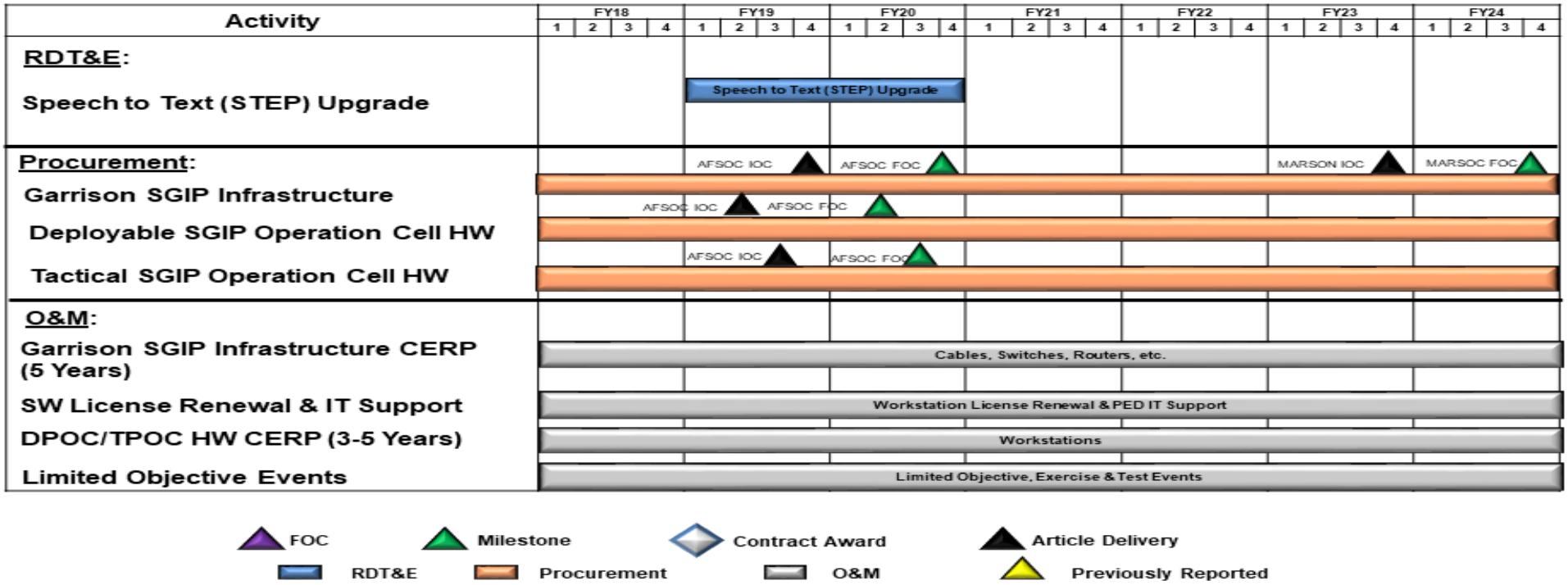

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305208BB / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** S400A / *Distributed Common Ground/ Surface Systems*

DCGS-SOF

SOF SIGNALS INTELLIGENCE PROCESSING, EXPLOITATION, & DISSEMINATION (SOF SIGINT PED)

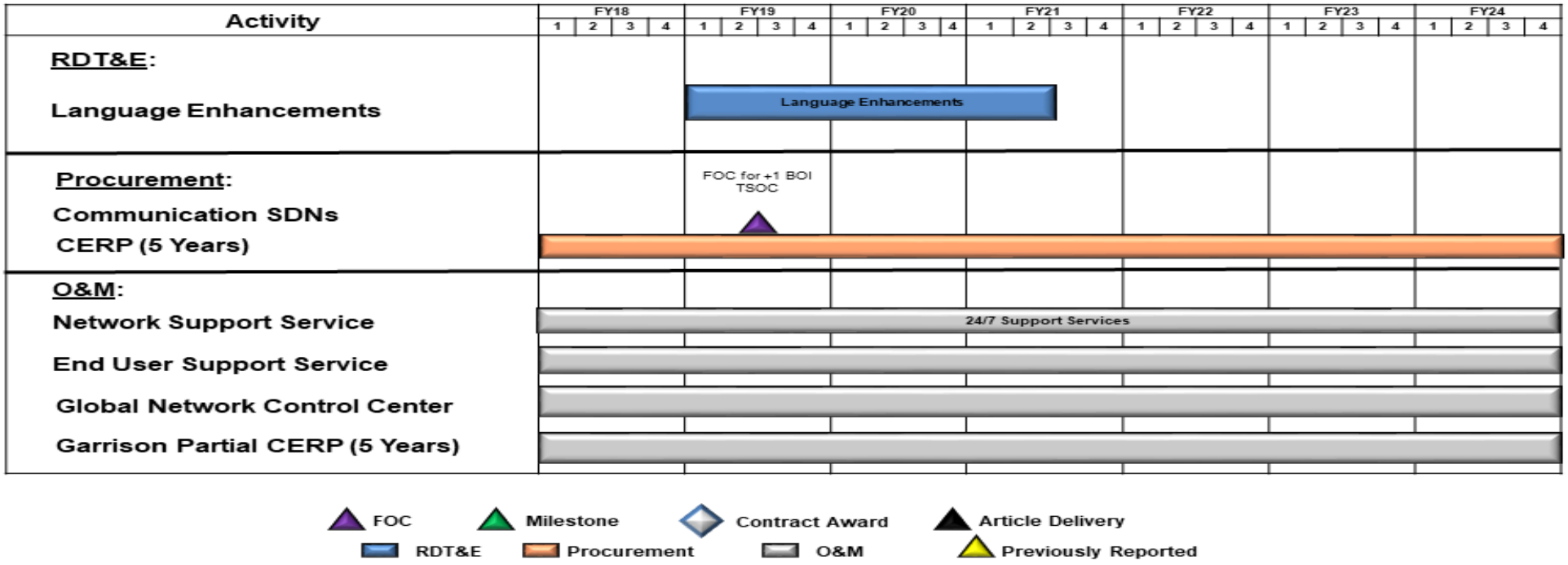

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305208BB / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** S400A / *Distributed Common Ground/ Surface Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Distributed Common Ground/Surface Systems				
DCGS-SOF enhancements in partnership with FADE develop, integrate, and test emerging technologies and capabilities to include: advanced analytics, user interface, disconnected operations into baseline	3	2018	4	2024
Develop, integrate, test next gen DCGS-SOF machine learning and artificial intelligence seeking to automatically identify and tag objects from ingested images and documents	2	2019	4	2024
Partner with FADE to integrate and test SOF and external aggregated Data Layers and Sources sharing DCGS-SOF FADE information with Coalition partners and refine back end design and infrastructure	1	2018	4	2020
Develop, integrate, test next gen DCGS-SOF tech, capabilities: Natural Language Processing (NLP), speech-to-text, language enhancements, upgrade imaging, human/ object detection & characterization	1	2019	4	2024
DCGS Distributed Framework (DDF) improvements with FADE and DISR/ICSR/ DI2E to develop, integrate, & test next gen DDF architecture to comply with content discovery, retrieval data & IdAM/PKI standards	1	2020	4	2024
Develop, integrate, and test next gen DCGS-SOF ontologies utilizing a Gold Standard Data Set to improve object identification and tagging across the advanced analytics enterprise	1	2018	2	2019
Participate in Exercise and Limited Objective events to include: Trident Spectre, Enterprise Challenge, Storm Force, and DI2E Plugfest (annually); United Vision (even fiscal years)	1	2018	4	2024

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1105219BB / *MQ-9 Unmanned Aerial Vehicle (UAV)*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	80.453	33.106	18.403	20.697	-	20.697	21.265	19.446	19.847	20.310	Continuing	Continuing
S851: *MQ-9 Unmanned Aerial Vehicle (UAV)*	80.453	33.106	18.403	20.697	-	20.697	21.265	19.446	19.847	20.310	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element identifies, develops, rapidly prototypes, integrates, and tests Special Operations Forces (SOF) - peculiar mission kits, mission payloads, weapons, and modifications on MQ-9 Unmanned Aerial Vehicles (UAVs), Ground Control Stations (GCSs), and training systems as a component of the Medium Altitude Long Endurance Tactical (MALET) program. USSOCOM is designated as the DOD lead for planning, synchronizing, and as directed, executing global operations against terrorist networks. USSOCOM requires the capability to find, fix, finish, exploit, and analyze time-sensitive high-value targets. These targets can often only be identified with patient collection of information and require rapid, decisive action during the short periods in which they present themselves. This program element addresses the primary areas of Intelligence, Surveillance, Reconnaissance, and Target (ISR&T) Acquisition, and Strike.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	37.863	18.403	20.793	-	20.793
Current President's Budget	33.106	18.403	20.697	-	20.697
Total Adjustments	-4.757	0.000	-0.096	-	-0.096
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-3.500	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.257	-			
• Other Adjustments	-	-	-0.096	-	-0.096

Change Summary Explanation

Funding:

FY 2018: Decrease of -$4.757 million is due to a transfer of -$1.257 million to Small Business Innovative Research/Small Business Technology Transfer programs and -$3.500 million for congressional directed reduction.

FY 2019: None.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1105219BB *I MQ-9 Unmanned Aerial Vehicle (UAV)*

FY 2020: Decrease of -$0.096 million for minor programmatic adjustments.

Schedule: None.

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1105219BB / *MQ-9 Unmanned Aerial Vehicle (UAV)*	Project (Number/Name) S851 / *MQ-9 Unmanned Aerial Vehicle (UAV)*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S851: *MQ-9 Unmanned Aerial Vehicle (UAV)*	80.453	33.106	18.403	20.697	-	20.697	21.265	19.446	19.847	20.310	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

As the supported combatant command in global operations, USSOCOM requires the capability to find, fix, finish, exploit, and analyze time-sensitive high-value targets. These targets can often only be identified with patient collection of information and require rapid, decisive action during the short periods in which they present themselves. This project addresses the primary areas of Intelligence, Surveillance, Reconnaissance, and Target (ISR&T) Acquisition and Strike.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: MQ-9 UAV	33.106	18.403	20.697	-	20.697
Description: Identifies, develops, integrates, and tests Special Operations Forces (SOF)-peculiar mission kits, mission payloads, weapons, and modifications on MQ-9 UAVs, Ground Control Stations (GCSs), and training systems. ***FY 2019 Plans:*** Develop, test, and integrate SOF-peculiar emerging technology mission kits, mission payloads, weapons and modifications on MQ-9 UAVs, GCSs, and training systems. ***FY 2020 Base Plans:*** Develops, tests, and integrates SOF-peculiar emerging technology mission kits, mission payloads, weapons and modifications on MQ-9 UAVs, GCSs, and training systems. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $2.294 million due to accelerating aircraft software releases from every 10-12 months to every 6-8 months.					
Accomplishments/Planned Programs Subtotals	33.106	18.403	20.697	-	20.697

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1105219BB / *MQ-9 Unmanned Aerial Vehicle (UAV)*	**Project (Number/Name)** S851 / *MQ-9 Unmanned Aerial Vehicle (UAV)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/1108MQ9: *MQ-9 Unmanned Aerial Vehicle*	41.440	24.621	5.338	1.900	7.238	7.346	7.116	7.126	11.150	Continuing	Continuing

Remarks

D. Acquisition Strategy

MQ-9 UAV implements an agile acquisition approach for the MQ-9 aircraft, GCS and Electro-Optical/Infrared (EO/IR) turret sensor Operational Flight Program (OFP) software development. The MQ-9 UAV provides rapid prototyping activities and technology maturation events in order to increase first pass lethality. Contract types include a mix of cost type and fixed priced. Proprietary issues with the aircraft, GCS and sensor software as well as aircraft modification considerations dictate sole source contracts. MQ-9 UAV leverages service common Contractor Logistics Support (CLS) contracts for aircraft and ancillary equipment sustainment.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1105219BB / *MQ-9 Unmanned Aerial Vehicle (UAV)*	Project (Number/Name) S851 / *MQ-9 Unmanned Aerial Vehicle (UAV)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MQ-9 UAVs, Ground Control Stations, and Training Systems	SS/ Various	General Atomics Aeronautical Services : San Diego, CA	36.804	27.514	Jun 2018	14.698	Jun 2019	16.538	Apr 2020	-		16.538	Continuing	Continuing	-
MQ-9 UAVs, Ground Control Stations, and Training Systems	SS/ Various	Raytheon : McKinney, TX	7.445	2.500	Jul 2018	1.292	Jul 2019	1.456	Apr 2020	-		1.456	Continuing	Continuing	-
Prior Years Completed Projects	Various	Various : Various	15.900	-		-		-		-		-	0.000	15.900	-
		Subtotal	60.149	30.014		15.990		17.994		-		17.994	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MQ-9 UAVs, Ground Control Stations, and Training Systems	SS/ Various	General Atomics Aeronautical Services : San Diego, CA	15.004	3.092	Jun 2018	2.413	Jun 2019	2.703	Apr 2020	-		2.703	Continuing	Continuing	-
Prior Years Completed Projects	Various	Various : Various	5.300	-		-		-		-		-	0.000	5.300	-
		Subtotal	20.304	3.092		2.413		2.703		-		2.703	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	80.453	33.106		18.403		20.697		-		20.697	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1105219BB / *MQ-9 Unmanned Aerial Vehicle (UAV)*	**Project (Number/Name)** S851 / *MQ-9 Unmanned Aerial Vehicle (UAV)*

MALET MQ-9 Schedule

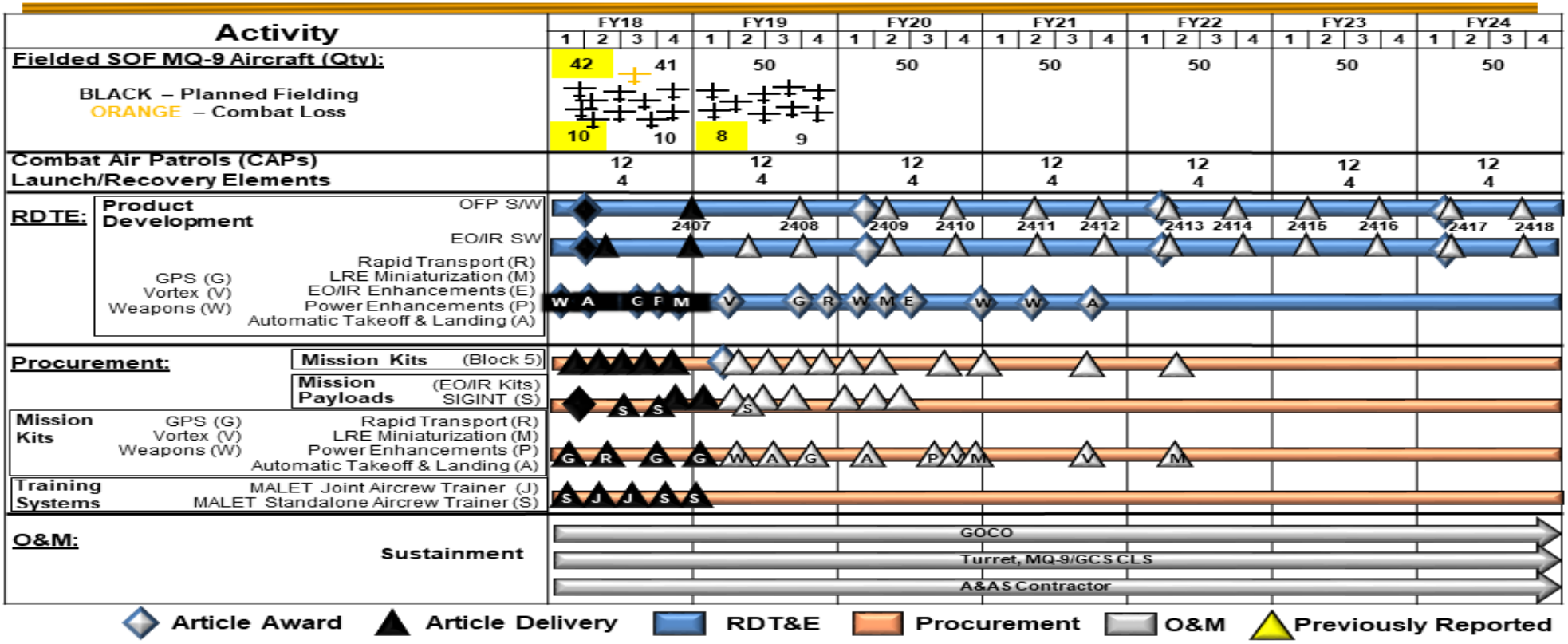

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1105219BB / *MQ-9 Unmanned Aerial Vehicle (UAV)*	**Project (Number/Name)** S851 / *MQ-9 Unmanned Aerial Vehicle (UAV)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MQ-9 UAVs, Ground Control Stations (GCSs), and Training Systems Product Development				
Operational Flight Program Software (SW)	1	2018	4	2024
Electro-optical/Infrared (EO/IR) Software (SW)	1	2018	4	2024
Weapons (W)	1	2018	2	2022
Global Positioning System (G)	3	2018	4	2020
Automated Takeoff and Landing (A)	1	2018	4	2022
Vortex Integration (V)	2	2019	3	2020
Long Range Endurance Miniaturization (M)	4	2018	2	2021
Power Enhancements (P)	3	2018	3	2019
EO/IR Enhancements (E)	2	2020	2	2021
Rapid Transport (R)	4	2019	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160279BB / *Small Business Innovation Research/Small Bus Tech Transfer*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	220.901	23.371	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
S050: *Small Business Innovation Research*	213.604	20.490	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
S051: *Small Business Technology Transfer*	7.297	2.881	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element consists of a highly competitive three-phase award system that provides qualified small businesses with the opportunity to propose high quality innovative ideas that meet specific research and development needs of USSOCOM. Small Business Innovation Research (SBIR) is a result of the Small Business Development Act of 1992. It was enacted by Congress in Public Law 97-219, reenacted by Public Law 99-443, and reauthorized by the SBIR Program Reauthorization Act of 2012. Starting in FY 1994, the SBIR program was refocused toward dual use and defense reinvestment efforts. Phase I projects evaluate the scientific technical merit and feasibility of an idea. Phase II projects expand the results of, and further pursue, the developments of Phase I. Phase III is for commercialization of the results of Phase II and requires the use of private or non-SBIR federal funding. USSOCOM participates annually in the DOD Request for Proposal process. USSOCOM then awards its proposed SBIR projects. FY 2014 was the first year USSOCOM participated in the Small Business Technology Transfer (STTR) program. The STTR goal is similar to the SBIR program, but the STTR program has the additional goal to expand public/private sector partnerships between small business and nonprofit U.S. research institutions.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	23.371	0.000	0.000	-	0.000
Total Adjustments	23.371	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	23.371	-			

Change Summary Explanation

Funding:

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160279BB *I Small Business Innovation Research/Small Bus Tech Transfer*

FY 2018: Increase of $23.371 million is due to reprogramming from various program elements for the congressionally mandated Small Business Innovation Research ($20.490 million) and Small Business Technology Transfer ($2.881 million) programs.

FY 2019: None.

FY 2020: None.

Schedule: None.

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160279BB / *Small Business Innovation Research/Small Bus Tech Transfer*	**Project (Number/Name)** S050 / *Small Business Innovation Research*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S050: *Small Business Innovation Research*	213.604	20.490	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project consists of a highly competitive three-phase award system that provides qualified small businesses with the opportunity to propose high quality innovative ideas that meet specific research and development needs of USSOCOM. Small Business Innovation Research (SBIR) is a result of the Small Business Development Act of 1992. It was enacted by Congress in Public Law 97-219, reenacted by Public Law 99-443, and reauthorized by the SBIR Program Reauthorization Act of 2012. Starting in FY 1994, the SBIR program was refocused toward dual use and defense reinvestment efforts. Phase I projects evaluate the scientific technical merit and feasibility of an idea. Phase II projects expand the results of, and further pursue, the developments of Phase I. Phase III is for commercialization of the results of Phase II and requires the use of private or non-SBIR federal funding. USSOCOM participates annually in the DOD Request for Proposal process. USSOCOM then awards its proposed SBIR projects.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: SBIR	20.490	-	-
Accomplishments/Planned Programs Subtotals	20.490	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

SBIR is a three-phase program that provides early-stage Research and Development (R&D) to small companies. Eligible projects must fulfill an R&D need identified by DOD and have the potential to be developed into a product or service for commercial or defense markets. SBIR is designed to stimulate technological innovation, increase private sector commercialization of federal R&D, increase small business participation in federally funded R&D and foster participation by minority and disadvantaged firms in technological innovation.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160279BB / *Small Business Innovation Research/Small Bus Tech Transfer*	Project (Number/Name) S050 / *Small Business Innovation Research*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Phase I <$150K	C/Various	Various : Various	8.078	11.573	Oct 2017	-		-		-		-	Continuing	Continuing	-
Phase II >$750K	C/Various	Various : Various	7.015	8.917	May 2018	-		-		-		-	Continuing	Continuing	-
Prior Year Funding	C/Various	Various : Various	198.511	-		-		-		-		-	0.000	198.511	-
		Subtotal	213.604	20.490		-		-		-		-	Continuing	Continuing	N/A

Remarks

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	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	213.604	20.490		0.000		-		-		-	Continuing	Continuing	N/A

Remarks

Due to multiple awards, the dates listed above reflect the last Phase I and II awarded.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160279BB / *Small Business Innovation Research/Small Bus Tech Transfer*	**Project (Number/Name)** S050 / *Small Business Innovation Research*

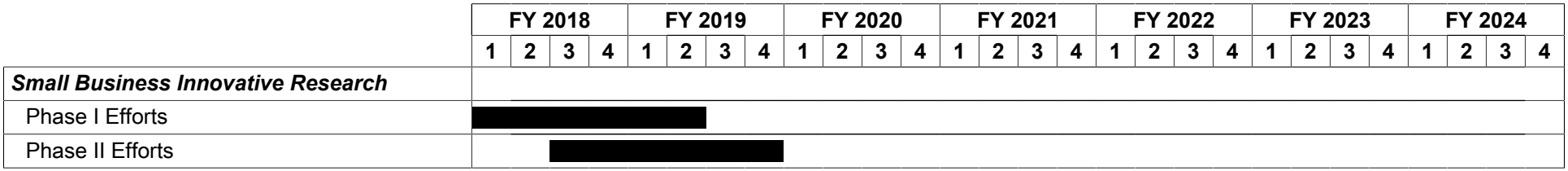

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160279BB / *Small Business Innovation Research/Small Bus Tech Transfer*	**Project (Number/Name)** S050 / *Small Business Innovation Research*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Small Business Innovative Research				
Phase I Efforts	1	2018	2	2019
Phase II Efforts	3	2018	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160279BB / *Small Business Innovation Research/Small Bus Tech Transfer*	Project (Number/Name) S051 / *Small Business Technology Transfer*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S051: *Small Business Technology Transfer*	7.297	2.881	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Small Business Technology Transfer (STTR) goal is to expand public/private sector partnerships between small business and nonprofit U.S. research institutions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: STTR	2.881	-	-
Accomplishments/Planned Programs Subtotals	2.881	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

STTR provides early-stage R&D funding directly to small companies working cooperatively with researchers at universities and other research institutions. STTR program is also a three-phased program and designed to stimulate technological innovation, increase private sector commercialization of federal R&D, increase small business participation in federally funded R&D and foster participation by minority and disadvantaged firms in technological innovation.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160279BB / *Small Business Innovation Research/Small Bus Tech Transfer*	**Project (Number/Name)** S051 / *Small Business Technology Transfer*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Phase II	C/FFP	Advanced System Supportability Engineer : Mannassas, VA 20109	1.499	2.000	May 2018	-		-		-		-	Continuing	Continuing	-
STTR <$1M	C/Various	Various : Various	0.675	0.881	Jun 2018	-		-		-		-	Continuing	Continuing	-
Prior Year Funding	C/Various	Various : Various	5.123	-		-		-		-		-	0.000	5.123	-
		Subtotal	7.297	2.881		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.297	2.881		0.000		-		-		-	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160279BB / *Small Business Innovation Research/Small Bus Tech Transfer*	**Project (Number/Name)** S051 / *Small Business Technology Transfer*

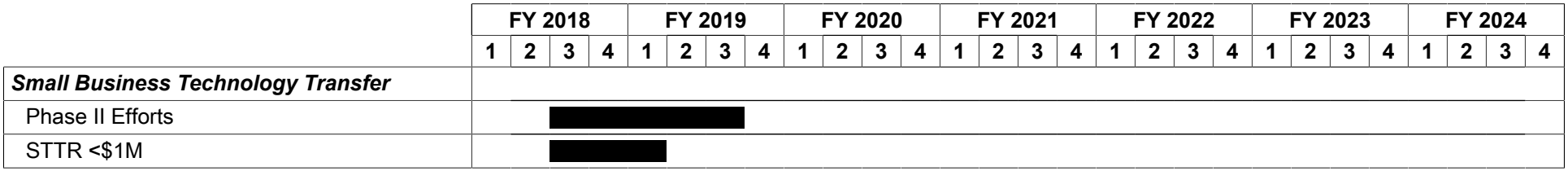

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160279BB / *Small Business Innovation Research/Small Bus Tech Transfer*	**Project (Number/Name)** S051 / *Small Business Technology Transfer*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Small Business Technology Transfer				
Phase II Efforts	3	2018	3	2019
STTR <$1M	3	2018	1	2019

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	1,064.997	250.604	175.862	245.795	-	245.795	206.685	136.047	113.530	123.396	Continuing	Continuing
SF100: *Aviation Systems Advanced Development*	809.919	169.288	108.897	137.460	-	137.460	98.484	33.530	5.255	13.031	Continuing	Continuing
SF200: *CV-22*	3.644	12.292	22.344	28.081	-	28.081	10.093	9.634	17.942	18.360	Continuing	Continuing
S750: *Mission Training and Preparation Systems*	26.392	8.181	7.520	8.595	-	8.595	9.630	9.558	9.757	9.983	Continuing	Continuing
S875: *AC/MC-130J*	37.926	9.351	17.091	31.891	-	31.891	55.083	53.892	54.943	56.224	Continuing	Continuing
D615: *Rotary Wing Aviation*	187.116	51.492	20.010	39.768	-	39.768	33.395	29.433	25.633	25.798	Continuing	Continuing

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

A. Mission Description and Budget Item Justification

SF100 Aviation Systems Advanced Development:
This project provides for the development, rapid prototyping, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation and training requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: SOF common avionics; Terrain Following/Terrain Avoidance (TF/TA) radar, best known as Silent Knight radar or AN/APQ-187; Defensive Countermeasures; Electronic Warfare (EW) - Radio Frequency Countermeasures (RFCM); Precision Strike Package (PSP); PSP High Energy Laser; AC-130H/W/U and MC-130E/H/P Recapitalization, and other SOF airborne platforms; digital terrain elevation data and electronic order of battle; digital maps; 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; and ISR payload technological improvements with size, weight, power and integration onto all SOF unmanned aircraft system (UAS) ISR platforms.

SF200 CV-22 Development/Test and Evaluation:
The CV-22 is a SOF variant of the V-22 vertical medium lift, multi-mission aircraft. The CV-22 project provides long range, high speed, infiltration, exfiltration, and resupply to Special Forces teams in hostile, denied, and politically sensitive areas. This is a capability not currently provided by other existing aircraft. The funding in this project supports integration, design, development, rapid prototyping, and test to provide improved capabilities to include, but not limited to, more robust performance in situational awareness, ISR, weapons, avionics, survivability, maneuverability, mission deployment and improved reliability and maintainability of the CV platform. CV-22 SOF Common TF/TA Silent Knight radar or AN/APQ-187, provides long-range, night/adverse weather, clandestine penetration of medium-to-high threat areas to infill, exfill, and resupply SOF forces. Provides more sustainable/capable replacement to obsolescing and technology limited TF/TA radar. There is a plan to develop a Forward Defensive Weapon System (FDWS), which 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 USMC MV-22 aircraft with the SOF peculiar color helmet mounted display (CHMD) and cockpit firing controls for pilot operation.

S750 Mission Training and Preparation Systems:
The Special Operations Mission Planning and Execution (SOMPE) project funds the definition, design, development, rapid prototyping, integration, and testing of SOMPE systems to support mission planning, rehearsal, and execution requirements to meet SOF-unique mission requirements and correct deficiencies in current mission planning, rehearsal, and execution capabilities. The Mission Training and Preparation Systems project also includes program management, systems engineering, configuration management, architecture development, risk reduction, and trade study initiatives, as well as initiatives to assure interoperability and commonality between diverse mission planning, rehearsal, and execution systems.

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

D615 Rotary Wing Aviation:
This project 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 also 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. When possible, Middle-Tier Acquisition (2016 NDAA Section 804) may also be used to accommodate rapid prototyping in the above projects to develop, demonstrate and evaluate residual operational capabilities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	259.886	184.993	137.242	-	137.242
Current President's Budget	250.604	175.862	245.795	-	245.795
Total Adjustments	-9.282	-9.131	108.553	-	108.553
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-13.000	-12.131			
• Congressional Rescissions	-	-			
• Congressional Adds	-	3.000			
• Congressional Directed Transfers	13.500	-			
• Reprogrammings	-0.257	-			
• SBIR/STTR Transfer	-9.525	-			
• Other Adjustments	-	-	108.553	-	108.553

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Project: SF100: *Aviation Systems Advanced Development*		
Congressional Add: *Vertical Takeoff and Landing (VTOL) Unmanned Aircraft System (UAS) Research*	-	3.000
Congressional Add Subtotals for Project: SF100	-	3.000
Congressional Add Totals for all Projects	-	3.000

Change Summary Explanation

Funding:

FY 2018: Net decrease of -$9.282 million is due to a transfer of funds to Small Business Innovative Research/Small Business Technology Transfer programs (-$9.525 million), a congressional reduction for excess product development for EW-RFCM (-$7.500 million), a congressional reduction for poor justification materials for CV-22 (-$1.500 million), a congressional reduction for ASE (-$4.000 million), a congressional transfer from Procurement for SOF Common TF/TA (Silent Knight) radar ($7.500 million), a congressional transfer from Procurement for Degraded Visual Environment ($6.000 million) and a decrease for higher command priorities (-$0.257 million).

FY 2019: Net decrease of -9.131 million is due to a congressional reduction for insufficient budget justification for EC-130J risk reduction (-1.252 million), a congressional reduction for C-130 SOF Common TF/TA training system development early to need (-$3.879 million), a congressional reduction for PSP High Energy Laser program (-$7.000 million), and a congressional add for VTOL UAS research ($3.000 million).

FY 2020: Net increase of $108.553 million is for interoperability/compatibility, consolidated testing and airworthiness release for MC-130J AbMN ($2.688 million), for interoperability/compatibility development testing for Integrated Tactical Mission System ($5.438 million), for deficiency resolution and to begin spiral

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
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*

1 development for EW-RFCM ($30.253 million), for all weather on PSP and Infrared Suppression Systems for SOF C-130s ($17.948 million), for continued development of PSP High Energy Laser ($23.227 million), interoperability/compatibility, consolidated testing and airworthiness release for C-130 SOF Common TF/TA (Silent Knight) radar ($11.363 million), Rotary Wing Aircraft Survivability increase ($11.425 million) for upgrades to RFCM to address emerging Radio Frequency threats, MH-60 Modifications increase ($4.351 million) for Upturned Exhaust System to reduce vulnerability to IR threats, MH-47 Modifications increase continue Active Parallel Actuator System development, including integration and testing with MH-47G subsystems ($1.860 million).

Schedule: Silent Knight Radar: Raytheon Tiger Team investigation of Low Rate Initial Production (LRIP) II 2A failures concluded in April 2018; LRIP Radar production resumed in June 2018. Initial Operational Test and Evaluation (IOT&E) successfully completed in November 2018. Fielding decision projected in Q2 FY 2019. Initial Operational Capability (IOC) remains in late Q2 FY 2019. EC-130J SOF-Unique 7.0/8.1 development delay was due to a delay in the 7.0/8.1 Air Force modification contract.

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
SF100: *Aviation Systems Advanced Development*	809.919	169.288	108.897	137.460	-	137.460	98.484	33.530	5.255	13.031	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation and training requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: SOF common avionics; Terrain Following/Terrain Avoidance (TF/TA) radar, best known as Silent Knight radar or AN/APQ-187; Defensive Countermeasures; Electronic Warfare (EW) - Radio Frequency Countermeasures (RFCM); Precision Strike Package (PSP); PSP High Energy Laser; AC-130H/W/U and MC-130E/H/P Recapitalization, and other SOF airborne platforms; digital terrain elevation data and electronic order of battle; digital maps; Airborne Mission Networking; near real-time Intelligence, Surveillance and Reconnaissance (ISR); data fusion; threat detection and avoidance; navigation, target detection, and identification technologies; weapons integration; digital broadcast capabilities; aerial refueling; survivability; and ISR payload technological improvements with size, weight, power and integration onto all SOF unmanned aircraft system (UAS) ISR platforms.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: EC-130J Commando Solo ***Description:*** EC-130J Commando Solo supported the development, integration and testing of digital broadcast capabilities on the EC-130J Commando Solo aircraft. This program is transitioning to the Multi Mission Payload - Heavy (MMP-H) program, PE 1160431BB. ***FY 2019 Plans:*** Develop and integrate emerging digital broadcast and antenna technologies into the Military Information Support Operations (MISO) System MMP-H Program. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of $1.179 million is due to completing the development and integration of emerging digital broadcast and antenna technologies into the MMP-H program.	-	1.179	-	-	-
Title: EW – RFCM ***Description:*** EW-RFCM supports development, integration and test activities to provide EW capability against RF threats for SOF AC/MC-130J aircraft. The Defensive Countermeasures (DCM) suite is an integrated package of existing and future aircraft defensive systems which provides situational awareness and threat	49.748	9.432	44.739	-	44.739

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
response processing that includes the RFCM system, and future defensive systems. The RFCM program provides SOF-unique aircraft defensive capabilities required for SOF missions. ***FY 2019 Plans:*** Continue integration and testing. Began government developmental flight test activities to provide EW capability against RF threats for SOF AC-130J and MC-130J platforms. ***FY 2020 Base Plans:*** Continues integration and testing. Completes government developmental and operational flight test activities on AC-130J and begins development and interoperability testing on MC-130J TF/TA radar, electronic warfare systems and airborne mission networking systems. Capabilities being developed include: High Band Transmission, Adaptive Radar Countermeasures, Very Low Band Receive, Low Band Transmit, and Increased Instantaneous Bandwidth, precision direction finding and advance techniques. Begin Spiral 1 development to address updated priority threats. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $35.307 million resolves deficiencies and begins development of Spiral 1 capabilities and adaptive countermeasures.					
Title: PSP for SOF ***Description:*** PSP for SOF supports systems engineering, analysis, development, and enhancement of the baseline PSP and integration, installation, and test on host MC-130J aircraft provided by the U.S. Air Force for the AC-130H, AC-130W and AC-130U recapitalization, as well as current SOF AC-130Js and AC-130Ws, and other SOF platforms. Missions for the AC-130 aircraft include, but are not limited to, Close Air Support, Air Interdiction, and Armed Reconnaissance. PSP is modular, scalable, and platform neutral. ***FY 2019 Plans:*** Continue development, integration, test, and system improvement of the PSP, to include defensive systems, Electro-Optical/Infrared (EO/IR) sensors, adverse weather and special mission processor capabilities on SOF C-130s and other SOF aircraft. ***FY 2020 Base Plans:***	13.018	18.354	28.528	-	28.528

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continues development, integration, test, and system improvement of the PSP, to include defensive systems, EO/IR sensors, adverse weather and special mission processor capabilities on SOF C-130s and other SOF aircraft. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $10.174 million is for the development, integration, test, and system improvement of all-weather capabilities of the PSP and Infrared Suppression Systems (IRSS) on SOF C-130s.					
Title: PSP High Energy Laser (HEL) ***Description:*** The HEL effort leverages a rapid prototyping approach to demonstrate integration of a laser weapon system onto an AC-130J aircraft. Utilizing a best of breed approach, it integrates laser, beam control, power and thermal subsystems via a government lead system integrator. This provides additional flexibility for rapid prototyping and future modifications. ***FY 2019 Plans:*** Continue development of subsystems, complete purchase of beam control subsystem and laser subsystem, interface control documentation, and completes risk reduction for AC-130J aircraft. ***FY 2020 Base Plans:*** Take receipt of subsystems ordered, begin assembly of subsystems into weapon systems. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of 0.241 million continues deferred laser assembly and integration.	15.077	26.986	27.227	-	27.227
Title: C-130 SOF Common TF/TA (Silent Knight) Radar ***Description:*** C-130 SOF Common TF/TA (Silent Knight) radar supports integration and test of a TF/TA radar and on-board processor to provide a multi-mode terrain following capability on MC-130J aircraft. Crew systems integration efforts include modifications to aircraft controls and displays to automate TF/TA flight management and reduce pilot, copilot and Combat Systems Officer workload during missions previously performed by five aircrew members on legacy C-130 tankers and penetrators. ***FY 2019 Plans:***	81.830	47.476	32.524	-	32.524

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continue SOF Common TF/TA (Silent Knight) radar and aircraft control and display integration efforts. Installs TF radar system kit on a third MC-130J and continues MC-130J TF/TA developmental flight test. Develop hardware and software for safety critical capabilities and integration issues on the Silent Knight radar. ***FY 2020 Base Plans:*** Completes MC-130J TF/TA developmental flight test on aircraft modified with TF/TA radar. Begins development and interoperability testing on MC-130J TF/TA radar, electronic warfare systems and airborne mission networking systems. Trains AFSOC aircrews on an MC-130J modified with a SOF Common TF/TA (Silent Knight) radar for operational testing. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of $14.952 million is due to completing SOF Common TF/TA (Silent Knight) radar and aircraft control and display integration efforts.					
Title: MH-60/MH-47 SOF Common TF/TA (Silent Knight) Radar ***Description:*** MH-60/MH-47 SOF Common TF/TA (Silent Knight) radar supports Engineering and Manufacturing Development (EMD), qualification, and operational flight testing of a SOF common TF/TA LPI/LPD radar to defeat advanced passive detection threats while maintaining ability to fly safe TF. Funding also supports design, development, integration, and testing on MH-47G and MH-60M aircraft for improved system capabilities to include, but not limited to, Aircraft Survivability Equipment (ASE) interoperability improvements and reduced TF signature management. ***FY 2019 Plans:*** Continue design, development, integration, and testing of SOF Common TF/TA (Silent Knight) radar ASE interoperability improvements and sensor fusion TF initiatives. ***FY 2020 Base Plans:*** Continues technology refresh efforts to include design, development, integration, and testing of SOF Common TF/TA (Silent Knight) radar to reduce Terrain Following signature, improve ASE interoperability, sensor fusion initiatives, and increase reliability. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $1.264 million for ASE interoperability and reduced Terrain Following signature management initiatives.	8.070	1.212	2.476	-	2.476
Title: ISR Payload	1.545	1.258	1.966	-	1.966

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
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 2019 Plans:*** Continue spiral development to increase the smaller SOF ISR platforms' capabilities through incremental development, integration, and testing. ***FY 2020 Base Plans:*** Continues spiral development to increase the smaller SOF ISR platforms' capabilities through incremental development, integration, and testing. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.708 million will validate additional sensors.					
Accomplishments/Planned Programs Subtotals	169.288	105.897	137.460	-	137.460

	FY 2018	FY 2019
Congressional Add: Vertical Takeoff and Landing (VTOL) Unmanned Aircraft System (UAS) Research	-	3.000
FY 2019 Plans: Funds to be reprogrammed to the Army.		
Congressional Adds Subtotals	-	3.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/5000C13000: *C-130 Modifications*	31.695	80.274	15.582	-	15.582	15.627	14.076	14.353	16.817	Continuing	Continuing
• PROC/2012C130J: *AC/MC-130J*	164.837	160.681	173.419	-	173.419	187.846	234.161	302.270	322.669	Continuing	Continuing
• PROC/1202PSP: *Precision Strike Package*	219.728	226.965	232.930	-	232.930	243.111	168.520	102.038	54.542	Continuing	Continuing
• PROC0201RWUPGR: *Rotary Wing Upgrades and Sustainment*	149.747	146.526	172.020	-	172.020	181.380	198.276	229.219	230.428	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

D. Acquisition Strategy

When possible, Middle-Tier Acquisition (2016 NDAA Section 804) may also be used to accommodate rapid prototyping in the above projects to develop, demonstrate and evaluate residual operational capabilities.

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

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

• EW – RFCM: Awarded delivery order on cost plus incentive fee contract to integrate and test an RFCM System on AC/MC-130J platform.

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

• PSP HEL: AC-130 HEL program utilizes Naval Surface Warfare Center Dahlgren Division as the government Lead System Integrator of HEL components. HEL system components purchased under Defense Ordinance Technology Consortium Other Transactional Authority. Both of these approaches provide flexibility for rapid prototyping.

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

• SOF Common TF/TA (Silent Knight) Radar: Cost Plus Fixed Fee (CPFF) awarded to Raytheon in January 2017 for development of Software Version (SW ver) 7.14 (outcome of 2017 Limited Users Test). CPFF award for development of SW ver 7.15 awarded in July 2018, with Qualification Testing expected in 4Q FY19. Continued software development to improve critical interoperability with other on-aircraft systems in FY19/20 followed by operational capability additions and move to sensor fusion TF FY20-24.

• ISR Payload Sensor Technology: Effort is being executed via a spiral development, integration and testing acquisition strategy based on leveraging existing sensor technology. The focus will be on reducing the size, weight, power and cost of state of the art ISR sensors fielded on larger ISR platforms, 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 C2 and Communications systems as appropriate.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command		Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Vertical Takeoff and Landing (VTOL) Unmanned Aircraft System (UAS) Research Congressional Add	C/TBD	TBD : TBD	-	-		3.000	Jan 2019	-		-		-	0.000	3.000	-
EC-130J Commando Solo Multi-Mission Payload – Heavy (MMP-H)	C/CPFF	Johns Hopkins University APL : Baltimore, MD	-	-		1.179	Mar 2019	-		-		-	0.000	1.179	-
Electronic Warfare - Radio Frequency Countermeasures (EW-RFCM)	C/CPIF	BAE Systems, Inc. : Totowa, NJ	97.843	42.218	Jan 2018	9.432	Nov 2018	33.469	Dec 2019	-		33.469	Continuing	Continuing	-
EW - RFCM Spiral 1 Adaptive Countermeasures	Option/ CPIF	BAE Systems, Inc. : Totowa, NJ	-	-		-		3.000	Jul 2020	-		3.000	Continuing	Continuing	-
Precision Strike Package (PSP) for SOF - Defensive Systems	C/TBD	Various : Various	-	2.510	Jan 2018	6.001	Jan 2019	10.141	Jan 2020	-		10.141	Continuing	Continuing	-
PSP for SOF - Electro-Optical/Infrared (EO/IR) Sensor	C/TBD	Various : Various	-	0.600	Jan 2018	1.400	Jan 2019	1.521	Jan 2020	-		1.521	Continuing	Continuing	-
PSP for SOF - Adverse Weather	C/TBD	Various : Various	-	3.240	Jan 2018	4.587	Jan 2019	15.846	Jan 2020	-		15.846	Continuing	Continuing	-
PSP for SOF - Alternate Position, Navigation & Timing	C/TBD	Various : Various	-	3.708	Jun 2018	5.541	Dec 2019	-		-		-	0.000	9.249	-
PSP High Energy Laser (HEL) - High Power Beam Director	C/CPFF	MZA Associates Corporation : Albuquerque, NM	-	10.027	Jul 2018	-		-		-		-	0.000	10.027	-
PSP HEL - Risk Reduction	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	1.300	Mar 2018	3.400	Jan 2019	-		-		-	0.000	4.700	-
PSP HEL - High Power Laser	C/CPFF	Lockheed Martin Aculite : Bothell, WA	-	3.750	Aug 2018	13.250	Dec 2018	-		-		-	0.000	17.000	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command		Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PSP HEL - Subsystem Assembly	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	-		6.622	Mar 2019	10.127	Jan 2020	-		10.127	Continuing	Continuing	-
PSP HEL - Battery Development	C/CPFF	TBD : TBD	-	-		1.914	Feb 2019	3.600	Jan 2020	-		3.600	0.000	5.514	-
PSP HEL - Thermal Development	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	-		1.800	Jan 2019	6.500	Jan 2020	-		6.500	Continuing	Continuing	-
PSP HEL - Initial Subsystem Ground Test	C/CPFF	Naval Surface Warfare Center : Dahlgren, VA	-	-		-		7.000	Jan 2020	-		7.000	Continuing	Continuing	-
C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) (Silent Knight) Radar	C/CPIF	Lockheed Martin Aero : Marietta, GA	100.795	65.131	Jan 2018	33.015	Jan 2019	19.407	Jan 2020	-		19.407	Continuing	Continuing	-
MH-60/MH-47 SOF Common TF/TA (Silent Knight) Radar	C/CPFF	Raytheon : McKinney, TX	3.898	5.655	Jun 2018	-		1.733	Apr 2020	-		1.733	Continuing	Continuing	-
Intelligence, Surveillance, and Reconnaissance Payload	TBD	Various : Various	2.783	1.545	Apr 2018	1.258	Apr 2019	1.966	Nov 2019	-		1.966	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	336.602	-		-		-		-		-	0.000	336.602	-
		Subtotal	541.921	139.684		92.399		114.310		-		114.310	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130 SOF Common TF/TA (Silent Knight) Radar	C/CPIF	Various : Various	10.307	3.923	Dec 2017	3.811	Jan 2019	3.887	Dec 2019	-		3.887	Continuing	Continuing	-
EW-RFCM	C/Various	Robins AFB : Warner Robins, GA	16.319	4.015	Jan 2018	0.000		2.470	Jan 2020	-		2.470	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PSP for SOF - Other Government Costs	C/TBD	Various : Various	-	2.960	Sep 2018	0.825	Sep 2019	1.020	Sep 2020	-		1.020	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	28.802	-		-		-		-		-	0.000	28.802	-
		Subtotal	55.428	10.898		4.636		7.377		-		7.377	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EW-RFCM	C/Various	Robins AFB : Warner Robins, GA	4.865	3.515	Jan 2018	-		5.800	Dec 2019	-		5.800	Continuing	Continuing	-
C-130 SOF Common TF/ TA (Silent Knight) Radar	C/CPIF	Various : Various	16.886	10.813	Dec 2017	9.372	Jan 2019	9.230	Dec 2019	-		9.230	Continuing	Continuing	-
MH-60/MH-47 SOF Common TF/TA (Silent Knight) Radar	C/Various	Various : Various	121.744	2.415	Apr 2018	1.212	Jan 2019	0.743	Jan 2020	-		0.743	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	29.130	-		-		-		-		-	0.000	29.130	-
		Subtotal	172.625	16.743		10.584		15.773		-		15.773	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C-130 SOF Common TF/ TA (Silent Knight) Radar	C/CPIF	Various : Various	8.779	1.963	Dec 2017	1.278	Jan 2019	-		-		-	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	31.166	-		-		-		-		-	0.000	31.166	-
		Subtotal	39.945	1.963		1.278		-		-		-	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
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 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	809.919	169.288		108.897		137.460		-		137.460	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

EC-130J CSOLO Multi-Mission Payload – Heavy (MMP-H) Schedule

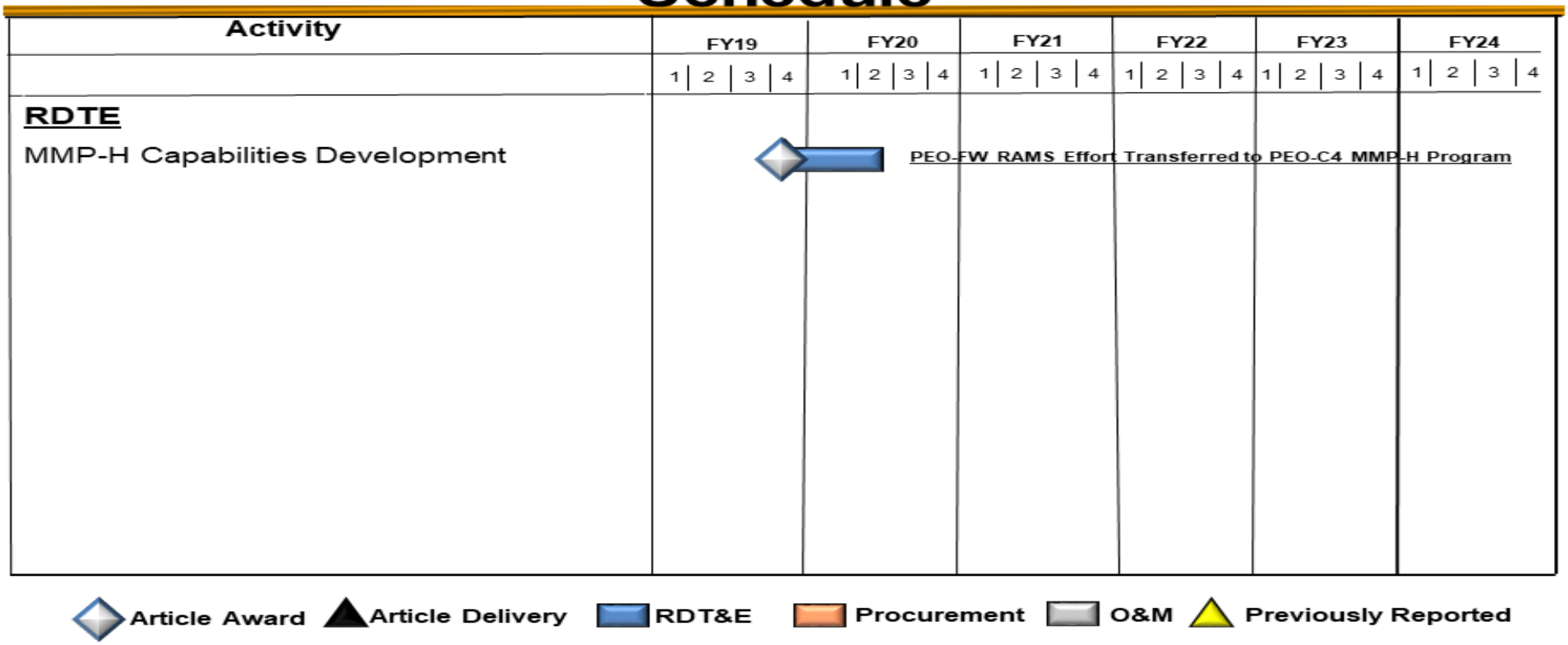

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

AC/MC-130J RFCM Schedule

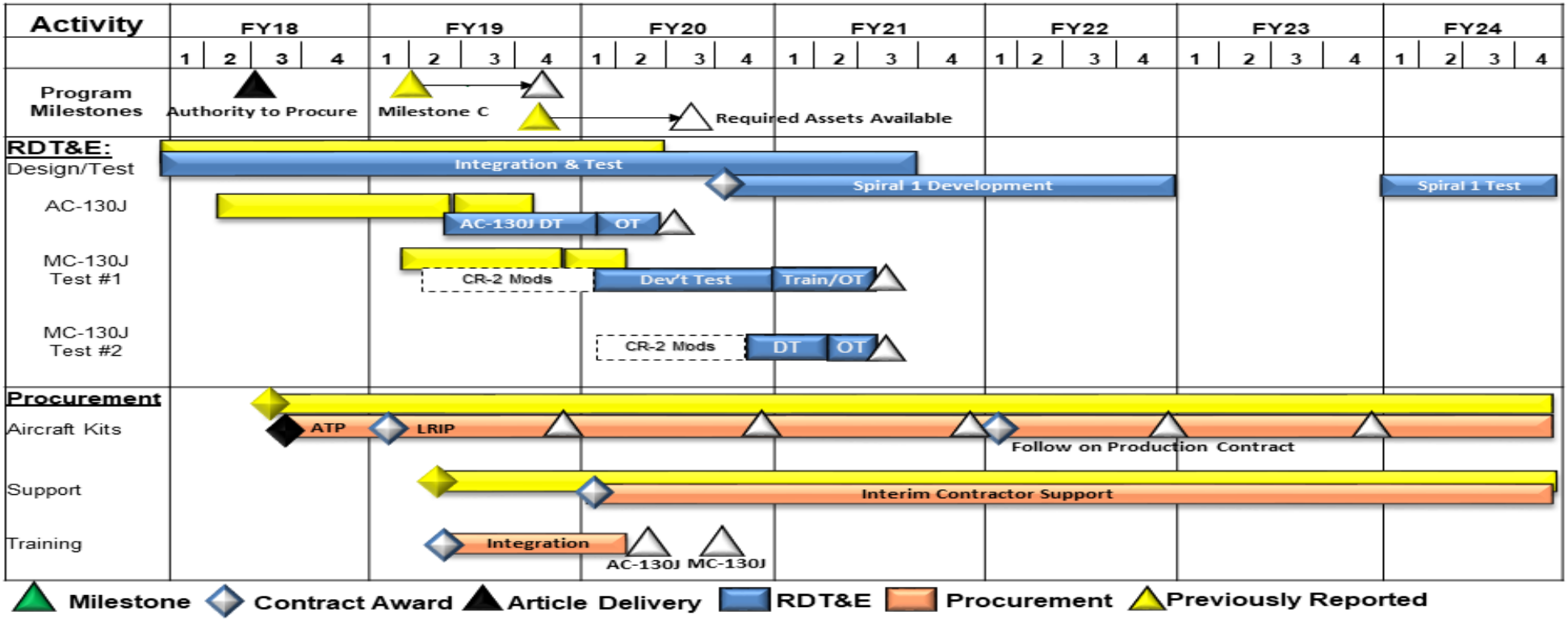

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

AC-130J/PSP Schedule

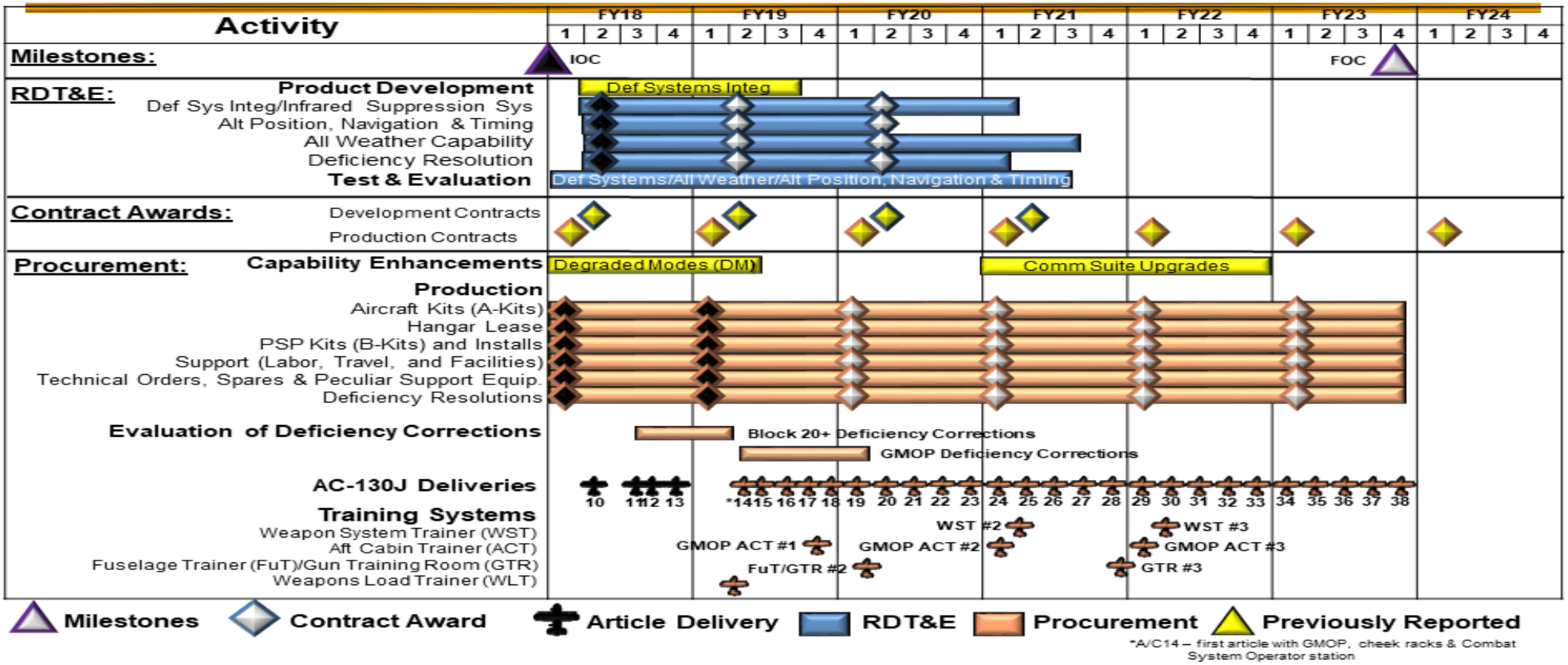

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

AC-130 High Energy Laser Schedule

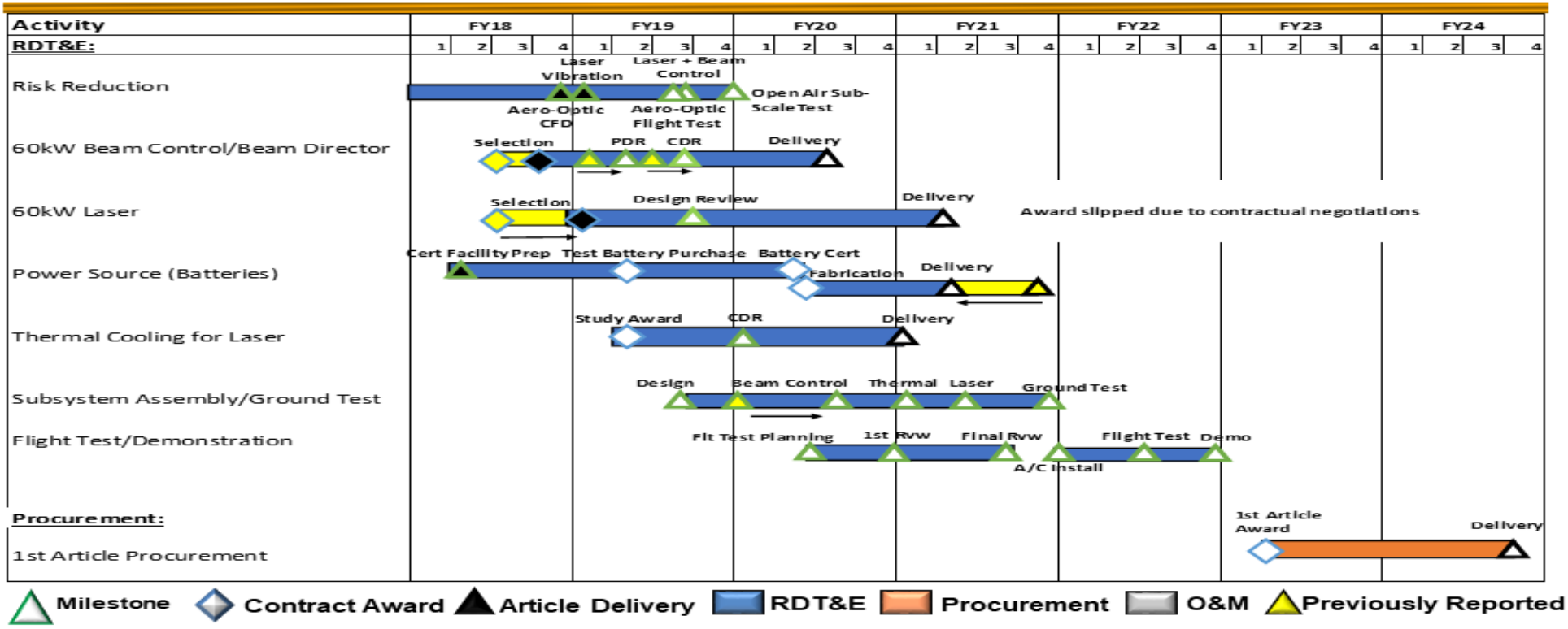

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

C-130 SOF Common TF/TA Radar Schedule

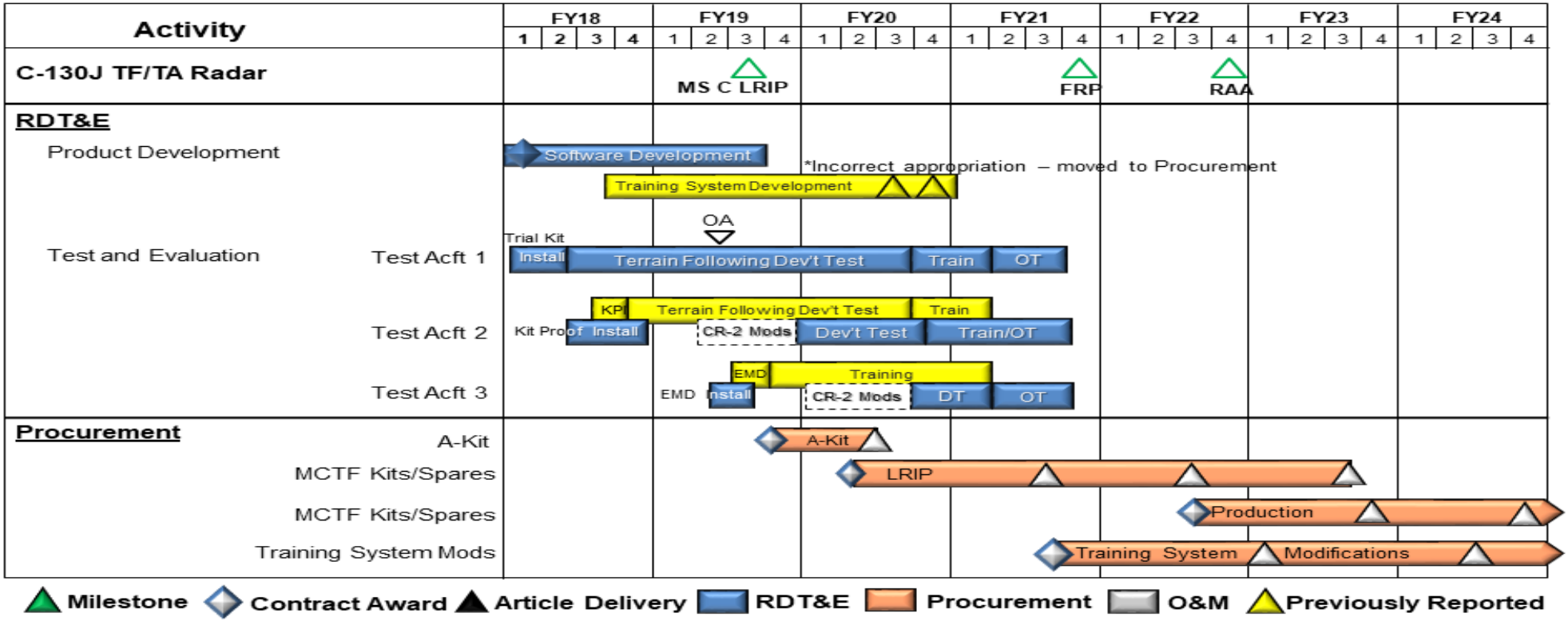

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

SOF Common TF/TA (Silent Knight) Radar Schedule

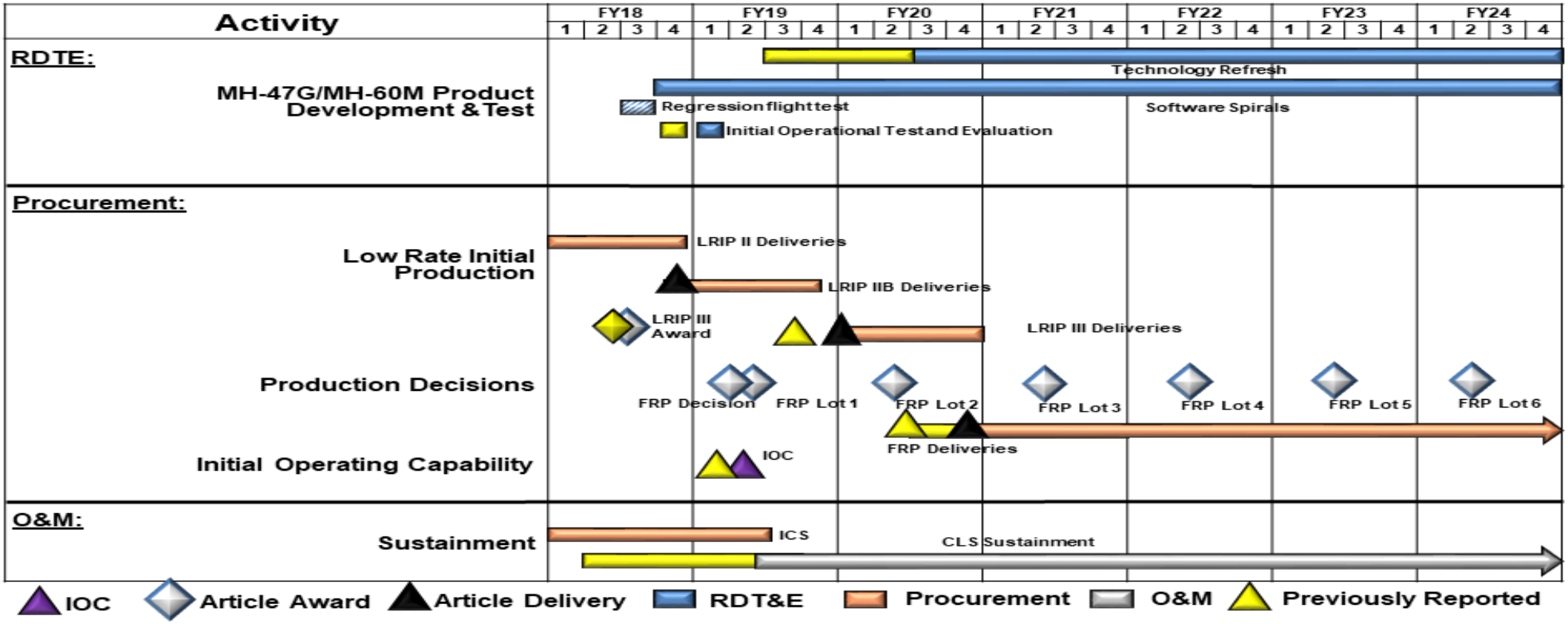

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

ISR Payload Sub-Project Schedule

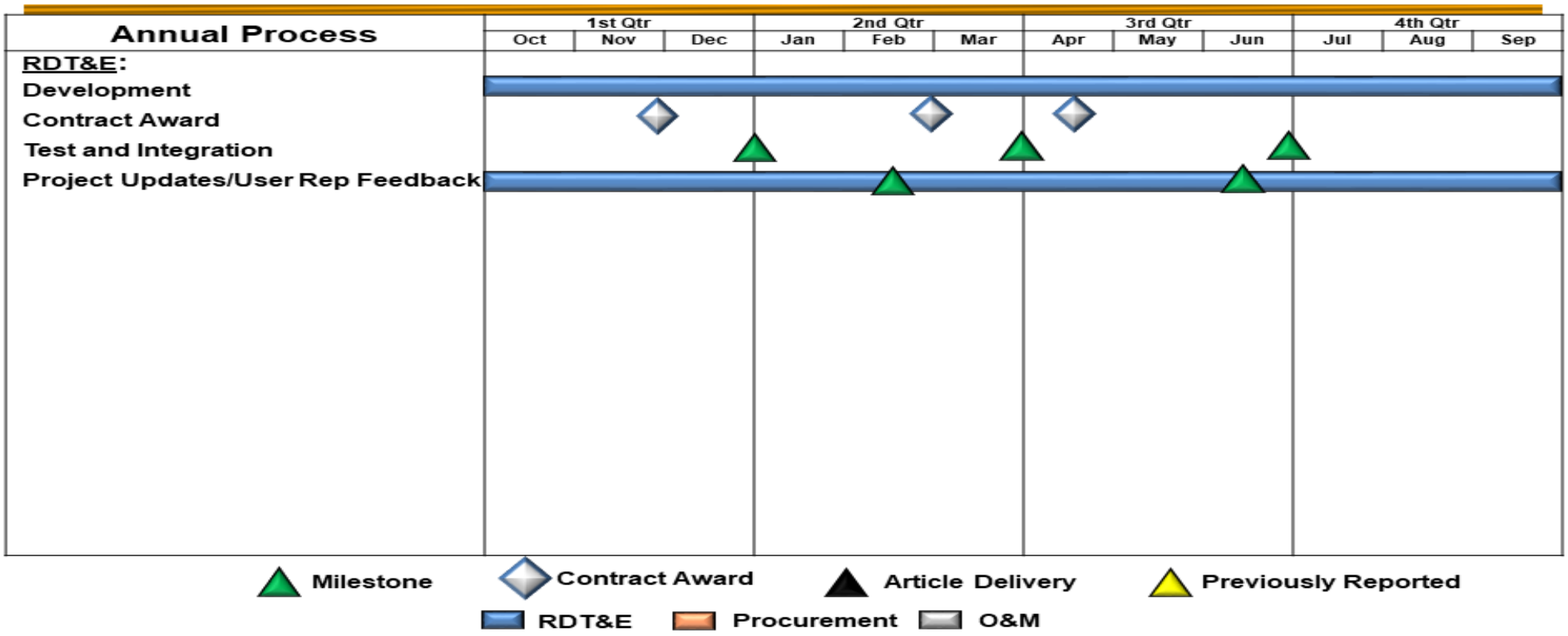

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF100 / *Aviation Systems Advanced Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
EC-130J Commando Solo Multi-Mission Payload – Heavy (MMP-H)				
Capabilities Development	4	2019	2	2020
Electronic Warfare - Radio Frequency Countermeasures (EW-RFCM)				
Product Development, Integration and Test	1	2018	3	2021
Spiral 1 Development	4	2020	4	2022
Spiral 1 Test	1	2024	4	2024
Development Test and Operational Test (DT/OT) AC-130J	2	2019	3	2020
Development Test and Operational Test #1 (DT/OT) MC-130J	1	2020	3	2021
Development Test and Operational Test #2 (DT/OT) MC-130J	4	2020	3	2021
Precision Strike Package (PSP) for SOF				
Capability Enhancements Product Development	1	2018	3	2021
Capability Enhancements Test and Evaluation	1	2018	4	2021
PSP High Energy Laser (HEL)				
PSP HEL Risk Reduction Demonstration	1	2018	4	2019
PSP HEL 60kw Beam Control/Beam Director	4	2018	3	2020
PSP HEL 60kW Laser	1	2019	2	2021
PSP HEL Power Source (Batteries)	2	2018	2	2021
PSP HEL Thermal Cooling for Laser	2	2019	1	2021
PSP HEL Subsystem Assembly/Ground Test	3	2019	4	2021
PSP HEL Flight Test/Demonstration	3	2020	4	2022
C-130 SOF Common Terrain Following/Terrain Avoidance (TF/TA) (Silent Knight) Radar				

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
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**
Software Development	1	2018	3	2019
Development/Flight Testing	1	2018	2	2021
Operational Testing	2	2021	4	2021
MH-60/MH-47 SOF Common (TF/TA) (Silent Knight) Radar				
MH-47G/MH-60M Product Development & Test	3	2018	4	2024
Initial Operation Test and Evaluation	1	2019	1	2019
Technology Refresh	3	2020	4	2024
Intelligence, Surveillance, and Reconnaissance (ISR) Payload				
Payload Development	1	2020	4	2020
Testing and Integration	1	2020	3	2020
Project Update/User Rep Feedback	1	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
SF200: *CV-22*	3.644	12.292	22.344	28.081	-	28.081	10.093	9.634	17.942	18.360	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 212

A. Mission Description and Budget Item Justification

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

Block 20: Design, integrate, test, and validate enhancements required to meet SOF-unique mission requirements and correct deficiencies identified in previous testing. This incremental development will provide improved capabilities to include, but not limited to, robust performance in situational awareness, weapons, avionics, survivability, maneuverability, mission deployment, improved reliability and maintainability of the CV platform.
Included within Block 20, but not limited to, is the Forward Defensive Weapon System (FDWS). FDWS provides the CV-22 with the capability to suppress threats in the forward hemisphere while the aircraft is in the critical phase of landing and takeoff at the mission objective. The FDWS integrates the fielded GAU-17 belly gun system currently employed on the USMC MV-22 aircraft with the SOF peculiar color helmet mounted display (CHMD) and cockpit firing controls for pilot operation.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: CV-22 SOF Common TF/TA (Silent Knight) Radar	12.292	22.344	27.587	-	27.587
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 APQ-186 terrain following/avoidance radar currently integrated on CV-22 aircraft.					
FY 2019 Plans: Continue integration/testing of CV-22 SF Common TF/TA (Silent Knight) radar.					
FY 2020 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continues integration/testing of CV-22 SOF Common TF/TA (Silent Knight) radar. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $5.243 million is to support Operational Flight Program (OFP) Software development and continues integration/testing of the CV-22 SOF Common TF/TA (Silent Knight) radar.					
Title: CV-22 Block 20 Systems ***Description:*** Provides the CV-22 with the improved capabilities to include, but not limited to, robust performance in situational awareness, weapons, avionics, survivability, maneuverability, mission deployment, improved reliability and maintainability of the CV platform. Included within Block 20, but not limited to, 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 (CHMD) and cockpit firing controls for pilot operation. ***FY 2020 Base Plans:*** Continue integration/testing of Block 20 FDWS onto CV-22. Previous efforts leading up to FY20 were MFP-4 funded. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.494 million to continue integration/testing of Block 20 FDWS onto CV-22. Previous efforts leading up to FY20 were MFP-4 funded.	-	-	0.494	-	0.494
Accomplishments/Planned Programs Subtotals	12.292	22.344	28.081	-	28.081

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/1000CV22: *CV-22 SOF Modification*	42.178	32.529	17.256	-	17.256	21.509	38.770	45.569	70.188	Continuing	Continuing
• PROC/V022A0: *Aircraft Procurement CV-22 (MYP)*	-	-	-	-	-	-	-	-	-	0.000	4,415.234
• RDT&E1/0401318F: *RDT&E, USAF*	22.519	18.502	16.606	-	16.606	14.873	15.183	15.459	-	64.350	225.577

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF200 / *CV-22*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• RDT&E/0604262N: *V-22 RDT&E, N BA-05*	182.916	143.079	184.705	-	184.705	133.425	110.559	125.764	111.218	184.398	1,105.301

Remarks

D. Acquisition Strategy

When possible, rapid prototyping will be incorporated in the acquisition strategies below to develop, demonstrate and evaluate residual operational capabilities.

The (Silent Knight) radar was developed by USSOCOM to provide a common TF/TA capability for SOF aircraft. The (Silent Knight) radar replaces the obsolescing APQ-186 TF/TA multimode radar on the CV-22. The acquisition strategy for the CV-22 SF Common TF/TA (Silent Knight) radar program is to procure radar units and radar software modifications through the USSOCOM (Silent Knight) radar Program Management Office, integrate (Silent Knight) radar into CV-22 aircraft, and buy aircraft modification kits, using a mixture of both sole source and competitive contracts.

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

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CV-22 SF Common TF/ TA (Silent Knight) Rradar - Operational Flight Program (OFP) Development	TBD	Various : Various	-	5.417	Jan 2018	7.910	Nov 2018	16.123	Nov 2019	-		16.123	Continuing	Continuing	-
CV-22 SF Common TF/ TA (Silent Knight) Radar - Integration	TBD	Various : Various	-	5.774	Feb 2018	12.099	Feb 2019	9.082	Feb 2020	-		9.082	Continuing	Continuing	-
CV-22 Block 20 Forward Defensive Weapon System (FDWS)	Various	Various : Various	1.057	-		-		0.494	Feb 2020	-		0.494	Continuing	Continuing	-
		Subtotal	1.057	11.191		20.009		25.699		-		25.699	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CV-22 SF Common TF/ TA (Silent Knight) Radar - OFP	TBD	Various : Various	0.651	0.590	Jan 2018	1.110	Nov 2018	1.132	Nov 2019	-		1.132	Continuing	Continuing	-
CV-22 SF Common TF/ TA (Silent Knight) Radar - Integration	TBD	Various : Various	-	0.511	Feb 2018	1.225	Feb 2019	1.250	Feb 2020	-		1.250	Continuing	Continuing	-
Prior Year	Various	Various : Various	1.936	-		-		-		-		-	0.000	1.936	-
		Subtotal	2.587	1.101		2.335		2.382		-		2.382	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.644	12.292		22.344		28.081		-		28.081	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF200 / *CV-22*

CV-22 Schedule

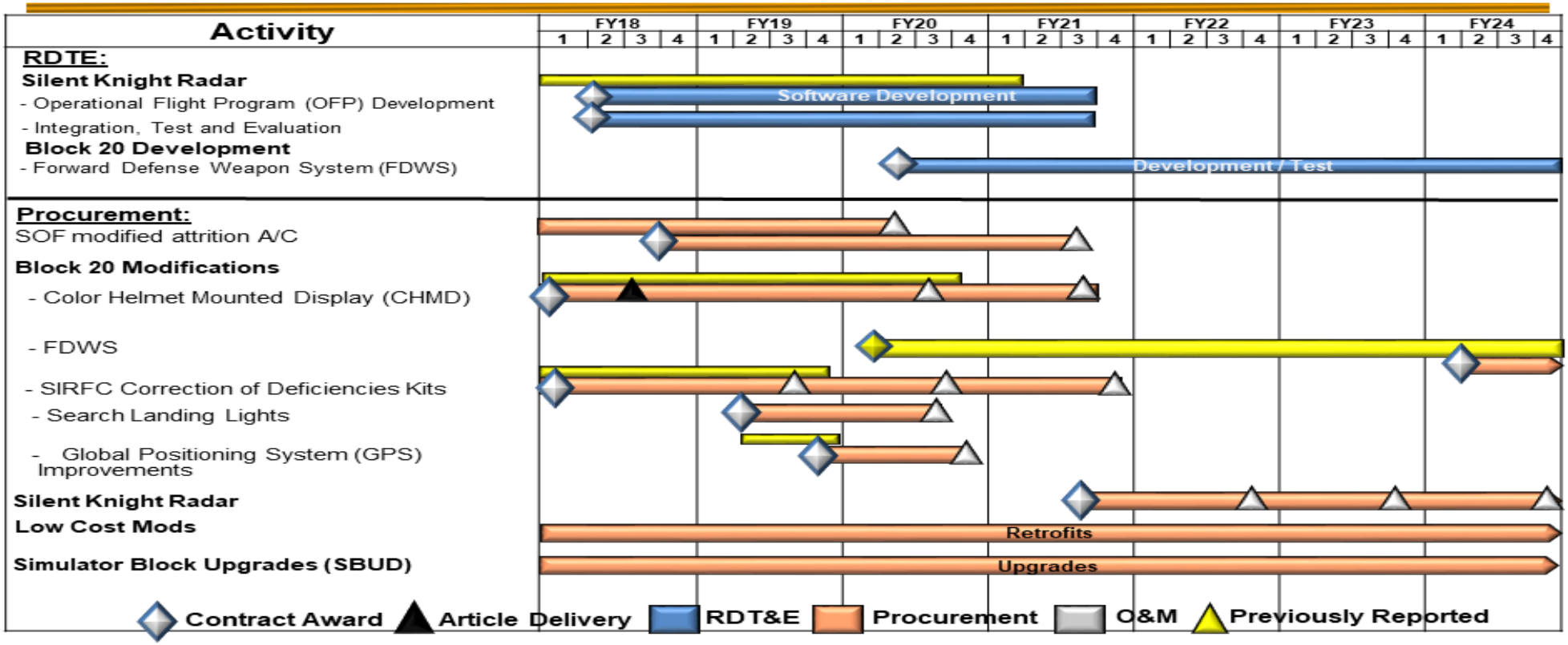

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** SF200 / *CV-22*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CV-22				
SOF Common TF/TA (Silent Knight) Radar - OFP Development	2	2018	4	2021
SOF Common TF/TA (Silent Knight) Radar - Radar Integration, Test & Evaluation	2	2018	4	2021
Block 20 Forward Defensive Weapon System (FDWS) Development/Test	2	2020	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S750: *Mission Training and Preparation Systems*	26.392	8.181	7.520	8.595	-	8.595	9.630	9.558	9.757	9.983	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SOMPE	8.181	7.520	8.595	-	8.595
Description: Special Operations Mission Planning and Execution (SOMPE) develops, integrates, tests, and validates software enhancements required to meet SOF-unique requirements for, and correct deficiencies to, mission planning, preview, and execution software tools to support all phases of SOF operations from deliberate to time-critical. The SOMPE project automates time-sensitive planning activities and provides enhanced situational awareness during mission execution. SOMPE provides the interoperable environment for SOF adaptive planning to integrate global operations including, but not limited to, precision strike software, digital navigation, and unmanned aerial systems command and control. This project also provides the integration of SOMPE with multi-dimensional visualization systems, providing immersive mission rehearsal in minimal timeframes from the SOMPE mission plan. SOMPE is embedded in the USSOCOM Headquarters, Theater Special Operations Commands, Joint Special Operations Task Forces, Joint Special Operations Aviation Components, SOF warfighters, and SOF warfighter platforms.					
FY 2019 Plans: Continue development of software applications to address SOF-unique aviation, ground and maritime mission planning requirements, data transfer software from mission planning systems to SOF helicopters, airplanes, and simulator/rehearsal systems, and automated performance models and performance prediction software.					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continues updating of mission planning, data transfer and performance software. Continue development of software applications for smaller mobile computer devices (tablets, smart phones, etc). ***FY 2020 Base Plans:*** 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 updating of mission planning, data transfer and performance software. Continues development of software applications for smaller mobile computer devices (tablets, smart phones, etc). ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $1.075 million is to support substantial growth of mobile computing tactical applications of both Ground and Air operational requirements for Mission Networking and situational awareness.					
Accomplishments/Planned Programs Subtotals	8.181	7.520	8.595	-	8.595

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

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

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 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	20.632	6.682	Jan 2018	6.073	Jan 2019	7.032	Jan 2020	-		7.032	Continuing	Continuing	-
		Subtotal	20.632	6.682		6.073		7.032		-		7.032	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOMPE Software	MIPR	Special Operations Mission Planning Office : Fort Eustis, VA	1.941	0.385	Feb 2018	0.371	Feb 2019	0.388	Feb 2020	-		0.388	Continuing	Continuing	-
		Subtotal	1.941	0.385		0.371		0.388		-		0.388	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOMPE Software	C/CPFF	Wyle-CAS : Huntsville, AL	3.819	1.114	Jan 2018	1.076	Jan 2019	1.175	Jan 2020	-		1.175	Continuing	Continuing	-
		Subtotal	3.819	1.114		1.076		1.175		-		1.175	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.392	8.181		7.520		8.595		-		8.595	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
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

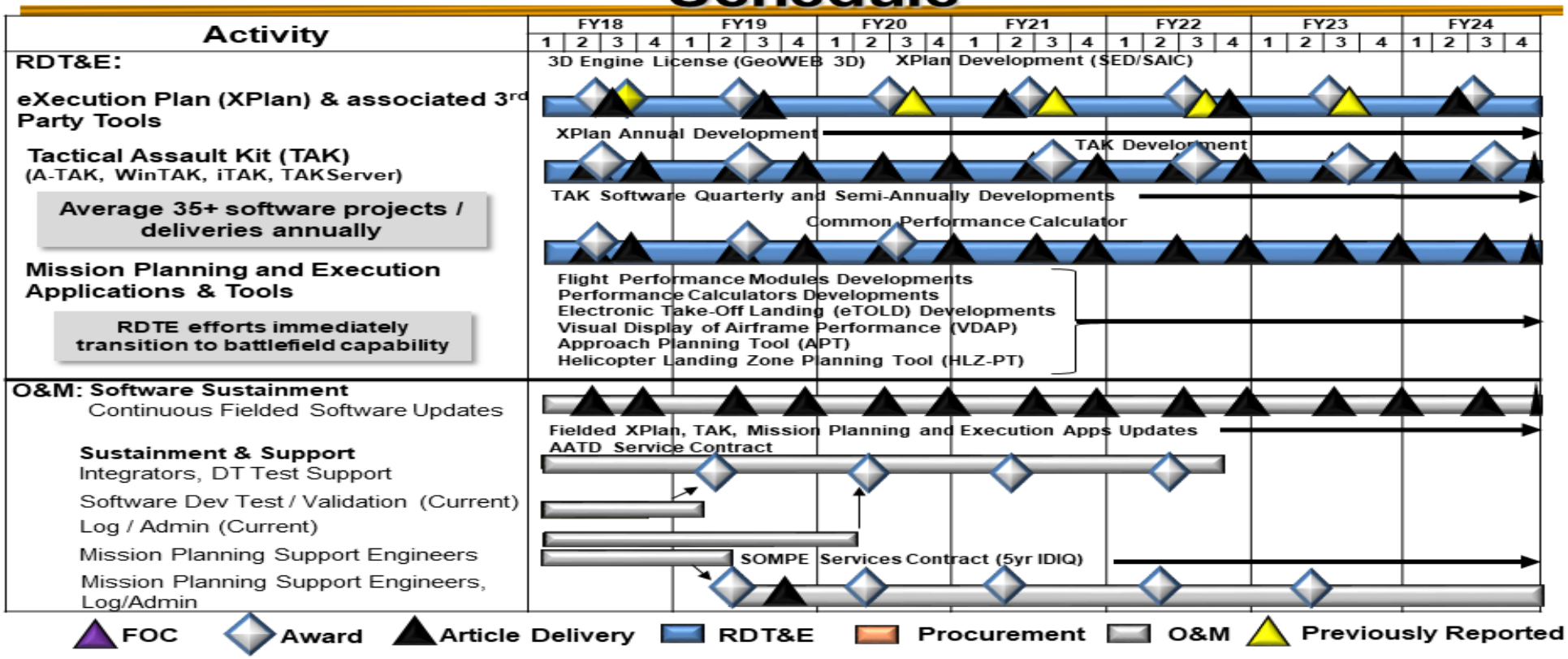

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S750 / *Mission Training and Preparation Systems*

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	2	2018	4	2024
Tactical Assault Kit (TAK)	2	2018	4	2024
Mission Planning and Execution Applications & Tools	2	2018	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S875: *AC/MC-130J*	37.926	9.351	17.091	31.891	-	31.891	55.083	53.892	54.943	56.224	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: MC-130J Airborne Mission Networking (AbMN)	8.936	4.324	2.688	-	2.688
Description: AbMN provides aircrew and mission personnel aboard MC-130J aircraft with the ability to send and receive mission-critical data to/from tactical and operational nodes in the battlespace. Capabilities include, but are not limited to, secure Line-of-Sight/Beyond Line-of-Sight voice/data communications, friendly force identification, mission tracking, threat identification, full-motion video, collaboration, chat, e-mail, and data links. AbMN enables SOF ability to streamline command and control, improve situational awareness, and reduce operational risk through real time exchange of digital information among aircraft, SOF components, and other tactical and operational nodes.					
FY 2019 Plans: Complete design phase with critical design review. Delivers trial installation and begins ground and flight testing. Develops technical data package.					
FY 2020 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Completes ground flight testing. Begins development and interoperability testing on MC-130J Terrain Following/ Terrain Avoidance (TF/TA) radar, electronic warfare systems and airborne mission networking systems. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of $1.636 million is due to completion of trial installation in FY 2019.					
Title: AC-130J ***Description:*** Develops, integrates, and tests aircraft enhancements to meet SOF-unique mission requirements. Enhancements include providing PSP aircraft infrastructure development.	0.415	-	-	-	-
Title: Integrated Tactical Mission Systems (ITMS) ***Description:*** ITMS resolves aircrew workload by merging SOF mission systems data with green aircraft flight information and automating displays and controls. Capabilities include, but are not limited to, automated route replanning, tactical flight management, integrated aircraft defensive systems, defensive countermeasures, and embedded training. ITMS provides reduced aircrews with integrated real-time information and decision-making data for safe terrain following/terrain avoidance flight and mission completion (MC-130J aircraft) and seamless employment of the Precision Strike Package (AC-130J aircraft). ***FY 2019 Plans:*** Began integration, interoperability risk reduction and test of SOF tactical mission systems, including but not limited to; terrain following/terrain avoidance capabilities, situational awareness capabilities, electronic warfare capabilities, and special mission systems (SMS). Began development of SMS capabilities required to automate tactical mission systems (TMS) (including, but not limited to; mission planning, data fusion, & threat correlation). ***FY 2020 Base Plans:*** Continues integration, interoperability risk reduction and test of SOF tactical mission systems, including but not limited to terrain following/terrain avoidance capabilities, situational awareness capabilities, electronic warfare capabilities, and SMS. Continues development of SMS capabilities required to automate TMS (including, but not limited to, data fusion, threat correlation, and applications of machine learning and artificial intelligence). ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $16.436 million supports open mission systems architecture development and software, integration, and evaluation required to automate TMS. SMS will provide the enabling architecture and capabilities.	-	12.767	29.203	-	29.203
Accomplishments/Planned Programs Subtotals	9.351	17.091	31.891	-	31.891

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/2012C130J: *AC/MC-130J*	164.837	160.681	173.419	-	173.419	187.846	234.161	302.270	322.669	Continuing	Continuing
• PROC/1202PSP: *Precision Strike Package*	219.728	226.965	232.930	-	232.930	243.111	168.520	142.038	135.542	Continuing	Continuing

Remarks

D. Acquisition Strategy

When possible, rapid prototyping will be 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 followed by a competitive Firm-Fixed Price contract for production, aircraft integration, and fielding.

ITMS: Develop virtual environment to enable collaborative integration of software services procured through competitive and sole source contracts. 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.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MC-130J Airborne Mission Networking (AbMN)	C/CPFF	Sierra Nevada Corporation : Centennial, CO	7.486	8.436	Dec 2017	3.596	Dec 2018	1.708	Dec 2019	-		1.708	Continuing	Continuing	-
Integrated Tactical Mission System (ITMS) - Tactical Flight Management System Development	C/Various	TBD : TBD	-	-		10.567	Jan 2019	22.675	Jan 2020	-		22.675	Continuing	Continuing	-
Prior Year	C/Various	Various : Various	29.906	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	37.392	8.436		14.163		24.383		-		24.383	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ITMS - Support	C/Various	Various : Various	-	-		1.200	Mar 2019	1.225	Mar 2020	-		1.225	Continuing	Continuing	-
		Subtotal	-	-		1.200		1.225		-		1.225	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AC-130J	C/Various	Lockheed Martin : Atlanta, GA	0.393	0.415	Jan 2018	-		-		-		-	0.000	0.808	-
MC-130J AbMN Integration and Test	MIPR	USSOCOM Detachment 1 Joint Test Interoperability Command : Eglin AFB, FL	0.141	0.500	Dec 2017	0.728	Dec 2018	0.980	Dec 2019	-		0.980	Continuing	Continuing	-
ITMS - Integration and Test	Sub Allot	USSOCOM Detachment 1 : Eglin AFB, FL	-	-		1.000	Jan 2019	5.303	Jan 2020	-		5.303	Continuing	Continuing	-
		Subtotal	0.534	0.915		1.728		6.283		-		6.283	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160403BB / *Aviation Systems*	Project (Number/Name) S875 / *AC/MC-130J*	

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	37.926	9.351		17.091		31.891		-		31.891	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

MC-130J AbMN Schedule

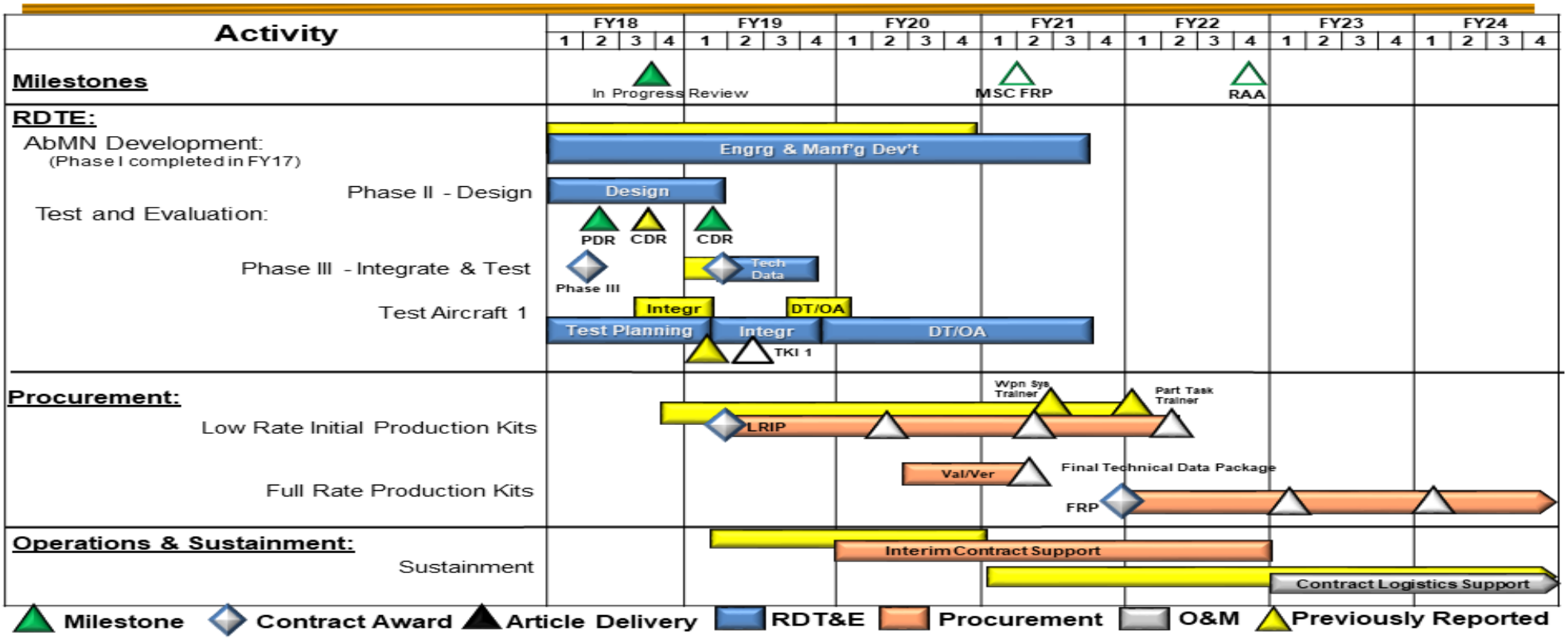

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

Common AC/MC-130J Mission Systems

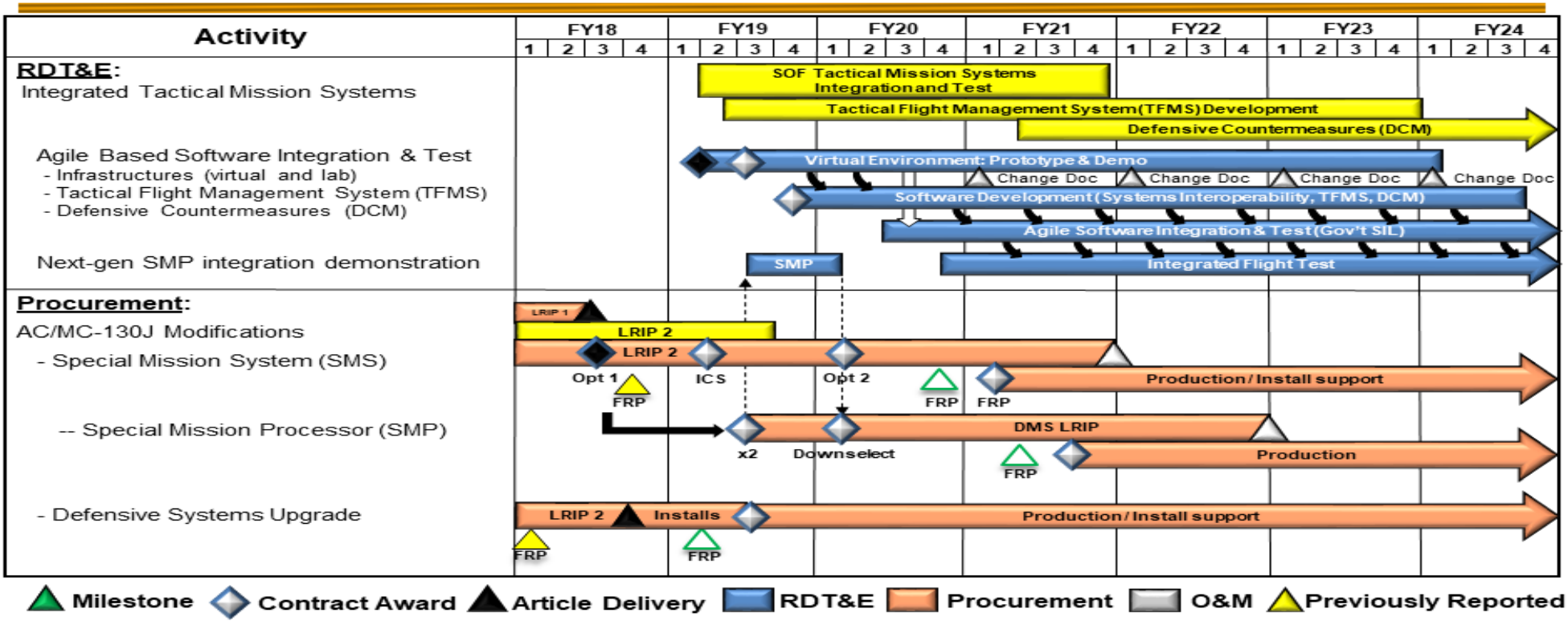

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** S875 / *AC/MC-130J*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MC-130J Airborne Mission Networking (AbMN)				
Engineering and Manufacturing Develpment	1	2018	3	2021
Phase II Design	1	2018	1	2019
Phase III Integration & Test (Includes Tech Data, Aircraft Integration, & Testing)	2	2018	4	2021
Integrated Tactical Mission Systems (ITMS) Agile Based Software Integration & Test				
Virtual Environment Prototype and Demonstration	1	2019	1	2024
Software Development (Systems interoperability, Tactical Flight Management System, Defensive Countermeasures)	4	2019	4	2024
Integration Demo of Next Generation Special Mission Systems	3	2019	1	2020
Agile Software Integration and Test	2	2020	4	2024
Integrated Flight Test	4	2020	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
D615: *Rotary Wing Aviation*	187.116	51.492	20.010	39.768	-	39.768	33.395	29.433	25.633	25.798	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development, rapid prototyping, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique rotary wing aviation and training requirements. This project includes modifications to Aircraft Survivability Equipment (ASE) avionics and weapons systems to counter rapidly emerging threats, address cyber security, improve lethality and enhance aircraft self-protection in contested environments. Rotary wing aircraft supported by this project include: MH-60M, MH-47G, and A/MH-6M. These aircraft provide aviation support to SOF in worldwide contingency operations and low-intensity conflicts. They must be capable of rapid deployment, undetected penetration of hostile areas, and operations at extended ranges under adverse weather conditions to infiltrate, provide logistics for, reinforce, and extract SOF. The anti-access/area denial (A2/AD) threat is characterized by an extensive and sophisticated ground based air defense system and an upgraded air-to-air capability targeted against helicopters. When possible, Middle-Tier Acquisition (2016 NDAA Section 804) may be used to accommodate rapid prototyping in the above projects to develop, demonstrate and evaluate residual operational capabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: A/MH-6M Block 3.0 Upgrade	15.608	3.120	2.688	-	2.688
Description: This upgrade is necessary to restore structural safety margins and performance margins for the aircrews. A new integrated airframe shell will address recurring structural failures due to high intensity, high gross weight operations and a decade of battle damage. A main/tail rotor drive train and engine control improvement effort will reduce airframe loads and restore sufficient safety and performance margins. An avionics upgrade will replace obsolescent components and provide improved battlefield situational awareness to the aircrew and operators necessary to support time-sensitive mission requirements. This upgrade is critical to keeping the A/MH-6M aircraft operational beyond FY 2020 and until a suitable replacement aircraft is available. The non-recurring effort provides development, fabrication of test hardware, qualification of components and systems, and data collection to support issuance of government airworthiness releases for structural and software modifications.					
FY 2019 Plans: Complete software qualification and initiates Airworthiness and Flight Characteristics (A&FC) testing efforts.					
FY 2020 Base Plans: Complete A&FC testing efforts, Electromagnetic Environmental Effects (E3) testing, and radio communications performance testing.					
FY 2019 to FY 2020 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Decrease of $0.432 million is due to higher command priorities.					
Title: MH-60M Modifications and Upgrades ***Description:*** Develops technologies to improve safety of the MH-60 and decrease operational costs. Efforts include, but are not limited to, DOD MH-60 engineering changes and product improvements to SOF-unique equipment, munitions utilized for testing, modifications to ASE and weapons systems designed to counter rapidly emerging threats, improve lethality, and enhance aircraft self-protection. The MH-60 Block Upgrades provide the development, integrations, and qualification efforts for the MH-60 helicopter to include flight test support, engineering analysis, documentation, and airworthiness substantiation. ***FY 2019 Plans:*** Continue integration and testing of Upturned Exhaust System (UES) II and other technologies to improve safety and decrease operational costs to include ASE, weapons systems improvement and munitions during testing. ***FY 2020 Base Plans:*** Continues integration and testing of UES II and other technologies to improve safety and decrease operational costs to include aircraft survivability equipment, weapons systems improvement and munitions during testing, such as the Joint Air-to-Ground Missile. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $4.351 million to support aircraft survivability and integration efforts. Increased funding will support UES II efforts and future munition modifications, such as the Joint Air-to-Ground Missile.	3.479	2.182	6.533	-	6.533
Title: Degraded Visual Environment (DVE) ***Description:*** Solution will fuse information from aircraft sensors to display real-time reference points, obstacles, and landing zone information to the aircrew. The DVE solution will provide MH-47/60 aircrews with visual cues for obstacle avoidance and aircraft control during all phases of flight and significantly increase crew and passenger survivability in DVE. This program addresses SOF-unique requirements for rapid fielding and weight limitations, and capitalizes integration of SOF-unique avionics with the unique skills of the SOF aviator. ***FY 2019 Plans:*** Complete aircraft integration and testing of the DVE two sensor solution on SOF MH-47 and MH-60. ***FY 2020 Base Plans:*** Begins airworthiness release support efforts. ***FY 2019 to FY 2020 Increase/Decrease Statement:***	7.000	1.672	0.871	-	0.871

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Decrease of $0.801 million due to completion of planned flight testing.					
Title: Future Vertical Lift (FVL) ***Description:*** Provides for the long-term replacement of an aging fleet of aircraft and provides a significant increase in range, speed, payload, survivability, reliability, and maintainability of vertical lift aircraft to meet emerging mission requirements. USSOCOM will participate in the service-common development of a joint 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 2019 Plans:*** Continue to participate in providing guidance and infrastructure necessary for FVL to implement a mission systems architecture that enables the integration of SOF capabilities into the aircraft. ***FY 2020 Base Plans:*** Continues to participate in providing guidance and infrastructure necessary for FVL to implement a mission systems architecture that enables the integration of SOF capabilities into the aircraft. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.408 million is due to increased engineering and development analysis requirements.	1.012	0.800	1.208	-	1.208
Title: Infrared Countermeasures (IRCM) ***Description:*** Provides a low Size, Weight, and Power (SWaP) IRCM capability suitable for the A/MH-6 Mission Enhanced Little Bird with potential use on the MH-60 and MH-47 aircraft. The IRCM program will leverage the Department of Navy developed Distributed Aperture Infrared Countermeasure System by integrating and testing a complete lightweight IRCM systems to include a missile warning system and countermeasure capability. The IRCM program includes development of an infrared exhaust suppressor for the A/MH-6. The A/MH-6 is the only tactical aircraft in the SOF inventory without protection from infrared guided and other advanced Man Portable Air Defense missiles. ***FY 2019 Plans:*** Continue qualification testing of missile warning and lightweight IRCM systems for the A/MH-6 aircraft. ***FY 2020 Base Plans:*** Completes development and begins qualification testing of infrared exhaust suppressor for the A/MH-6 aircraft. Continues qualification testing of missile warning and lightweight IRCM systems. ***FY 2019 to FY 2020 Increase/Decrease Statement:***	2.277	2.461	3.425	-	3.425

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Increase of $0.964 million in support of development efforts for infrared exhaust suppressor for the A/MH-6 aircraft.					
Title: MH-47 Modifications and Upgrades ***Description:*** Develops technologies to improve performance and safety of the MH-47G and decrease operational costs. Efforts include, but are not limited to, the Active Parallel Actuator Subsystem (APAS) and Engine Barrier Filter. This sub-project also includes modifications to ASE and weapons systems to counter rapidly emerging threats and enhance aircraft self-protection. ***FY 2019 Plans:*** Continue APAS development and testing, including integration with MH-47G subsystems. ***FY 2020 Base Plans:*** Continues APAS development, including integration with MH-47G subsystems, such as Common Avionics Architecture System and torque measurement development efforts. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $3.601 million is to support system integration, qualification, and flight testing.	9.736	5.305	8.906	-	8.906
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, and night conditions. ***FY 2019 Plans:*** Continue exploration of the next generation ARSOA cockpit, to include video processing module (VPM) development and testing. ***FY 2020 Base Plans:***	0.500	0.362	0.604	-	0.604

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continues exploration of the next generation ARSOA cockpit, to include VPM development and testing. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.242 million supports exploration of next generation cockpit technology.					
Title: Aircraft Survivability Equipment (ASE) Upgrades ***Description:*** Develops, integrates, and tests critical active and passive SOF-unique aircraft survivability equipment to counter the acknowledged high proliferation of advanced surface-to-air threat systems for the A/MH-6, MH-60, and MH-47. These threat systems are technically evolving at an unprecedented rate, requiring rapid counter measure system development and immediate spiraled improvements that will reduce the probability of successful engagement, increase the probability of detecting and countering threat systems, and improve the aircraft's ability to continue operating after sustained battle damage. This program includes development and testing of both new systems and pre-planned product improvements (P3I)/upgrades of fielded survivability equipment, flares, and associated qualification testing. P3I upgrades may include, but are not limited to, expansion of frequency ranges on existing systems, modernization of legacy components, and studies directed at potential "collaborative off-boarding/on-boarding" detect/countermeasure capabilities to provide expanded coverage for aircrews in a high threat environment. ***FY 2019 Plans:*** Continue development of new systems, P3I/upgrades of fielded survivability equipment, and continues development of flare countermeasures. ***FY 2020 Base Plans:*** Continues development of new systems, P3I/upgrades of fielded survivability equipment, and continues development of flare countermeasures. Additional detail can be provided under separate cover. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $11.425 million supports development of increased capability into the current SOF Radio Frequency Countermeasures system to address emerging threats. Additional detail can be provided under separate cover.	11.880	4.108	15.533	-	15.533
Accomplishments/Planned Programs Subtotals	51.492	20.010	39.768	-	39.768

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0201RWUPGR: *Rotary Wing Upgrades and Sustainment*	149.747	146.526	172.020	-	172.020	181.380	198.276	229.219	230.428	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 0201MH60: *MH-60 Blackhawk*	-	27.600	0.000	28.100	28.100	-	-	-	-	981.513	981.513
• 0601MH47: *MH-47 Chinook*	244.115	167.533	173.812	37.500	211.312	174.482	178.074	181.755	185.993	Continuing	Continuing

Remarks

D. Acquisition Strategy

• A/MH-6M Block 3.0 Upgrade comprises three distinct efforts: integrated airframe, Block 3 performance kits and avionics upgrades. The airframe efforts (new rotor blades/flight control kits and new shells) will be a sole-source contract to Boeing, owner of the technical data associated with the A/MH-6 airframes. The cockpit avionics architecture will be developed by Rockwell-Collins. Any new hardware components will be Non Developmental Item/Commercial-Off-The-Shelf to the extent possible and will be competitively selected. Airframe modification and integration work will be conducted at the Special Operations Forces Support Activity (SOFSA) by the incumbent contractor.

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

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

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

• IRCM integrates a mission configurable Missile Warning System and IRCM capability at a weight suitable for the A/MH-6 aircraft. Procurement of systems for integration and test will leverage Department of Navy IRCM development efforts and contracts. The government will integrate the systems onto the A/MH-6 utilizing existing aircraft modification contracts. Will begin evaluation and qualification of an infrared exhaust suppressor for the A/MH-6M aircraft.

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

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

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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• The ASE Upgrades program develops and tests both new systems and pre-planned product improvements/upgrades of fielded survivability equipment and flares. For new systems, other services' development and testing contracts are leveraged to the maximum extent possible. Upgrades of fielded equipment are typically accomplished by the OEM.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Degraded Visual Environment (DVE)	C/Various	PM TAPO : Fort Eustis, VA	46.418	7.000	May 2018	1.672	Jan 2019	0.871	Apr 2020	-		0.871	Continuing	Continuing	-
MH-47 Modifications and Upgrades	C/Various	PM TAPO : Fort Eustis, VA	29.017	9.736	Nov 2017	5.305	Nov 2018	8.906	Nov 2019	-		8.906	Continuing	Continuing	-
Aircraft Survivability Equipment (ASE) Radio Frequency Countermeasures (RFCM) Upgrades	C/Various	PM TAPO : Fort Eustis, VA	1.573	11.880	Jan 2019	4.108	Apr 2019	15.533	Mar 2020	-		15.533	Continuing	Continuing	-
Prior Years Funding	C/Various	PM MELB : Fort Eustis, VA	59.820	-		-		-		-		-	0.000	59.820	-
		Subtotal	136.828	28.616		11.085		25.310		-		25.310	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Future Vertical Lift	C/Various	PEO-RW : MacDill AFB, FL	2.119	1.012	Feb 2018	0.800	Feb 2019	1.208	Feb 2020	-		1.208	Continuing	Continuing	-
		Subtotal	2.119	1.012		0.800		1.208		-		1.208	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A/MH-6M Block 3.0 Upgrades	C/Various	PM MELB : Fort Eustis, VA	13.420	15.608	Nov 2018	3.120	Jan 2019	2.688	Jan 2020	-		2.688	Continuing	Continuing	-
MH-60M Modification and Upgrades	C/Various	Various : Various	0.952	3.479	May 2018	2.182	Jan 2019	6.533	Jul 2020	-		6.533	Continuing	Continuing	-
IRCM Integration and Testing	C/Various	PM TAPO : Fort Eustis, VA	8.950	2.277	Jun 2018	2.461	Apr 2019	3.425	Feb 2020	-		3.425	Continuing	Continuing	-
MPU	C/Various	PM TAPO : Fort Eustis, VA	-	0.500	Apr 2018	0.362	Jun 2019	0.604	Apr 2020	-		0.604	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Funding	C/Various	Various : Various	24.847	-		-		-		-		-	0.000	24.847	-
		Subtotal	48.169	21.864		8.125		13.250		-		13.250	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	187.116	51.492		20.010		39.768		-		39.768	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
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

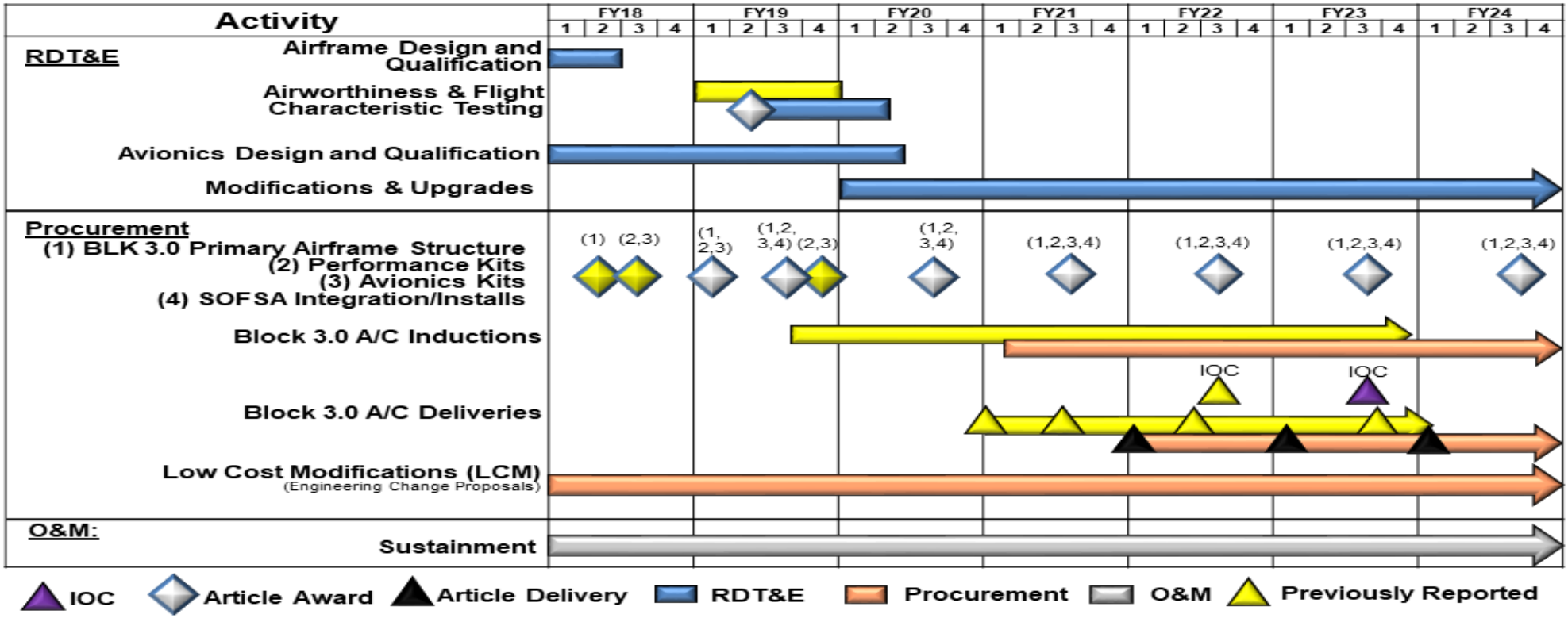

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

MH-60M Program Schedule

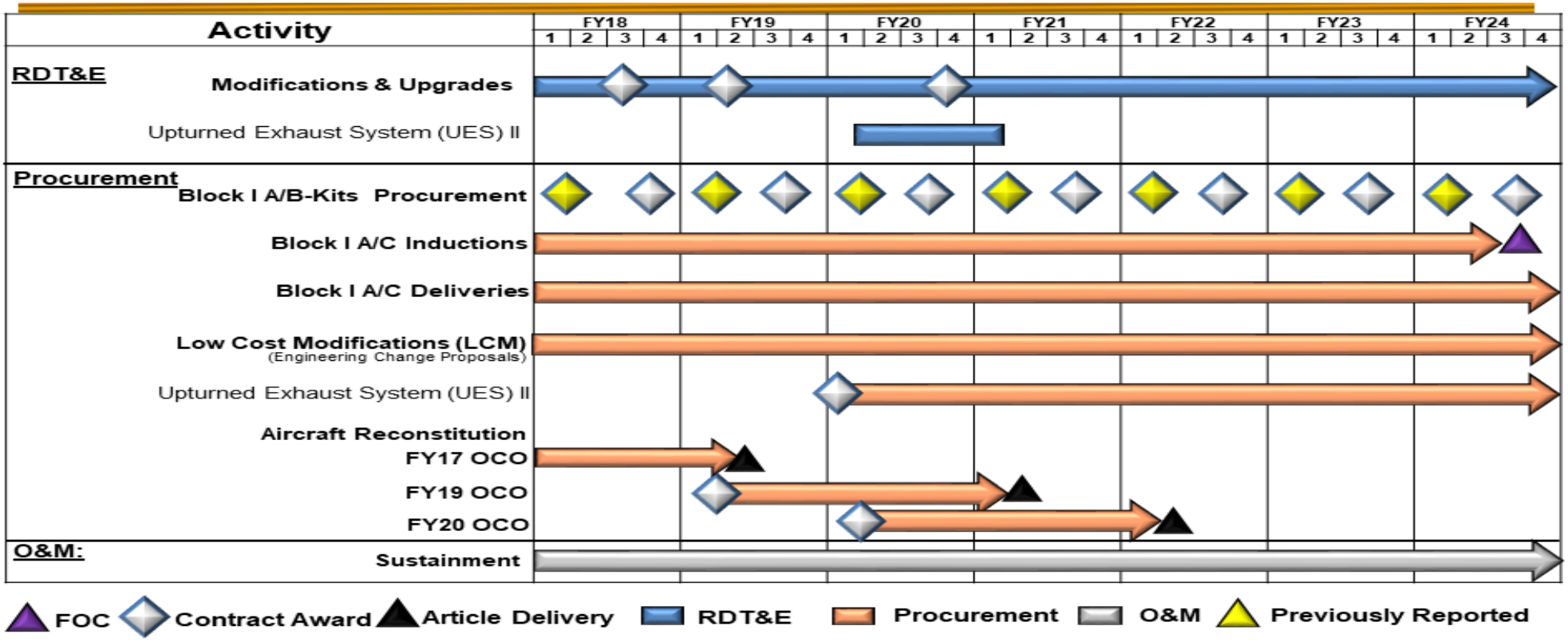

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Degraded Visual Environment Schedule

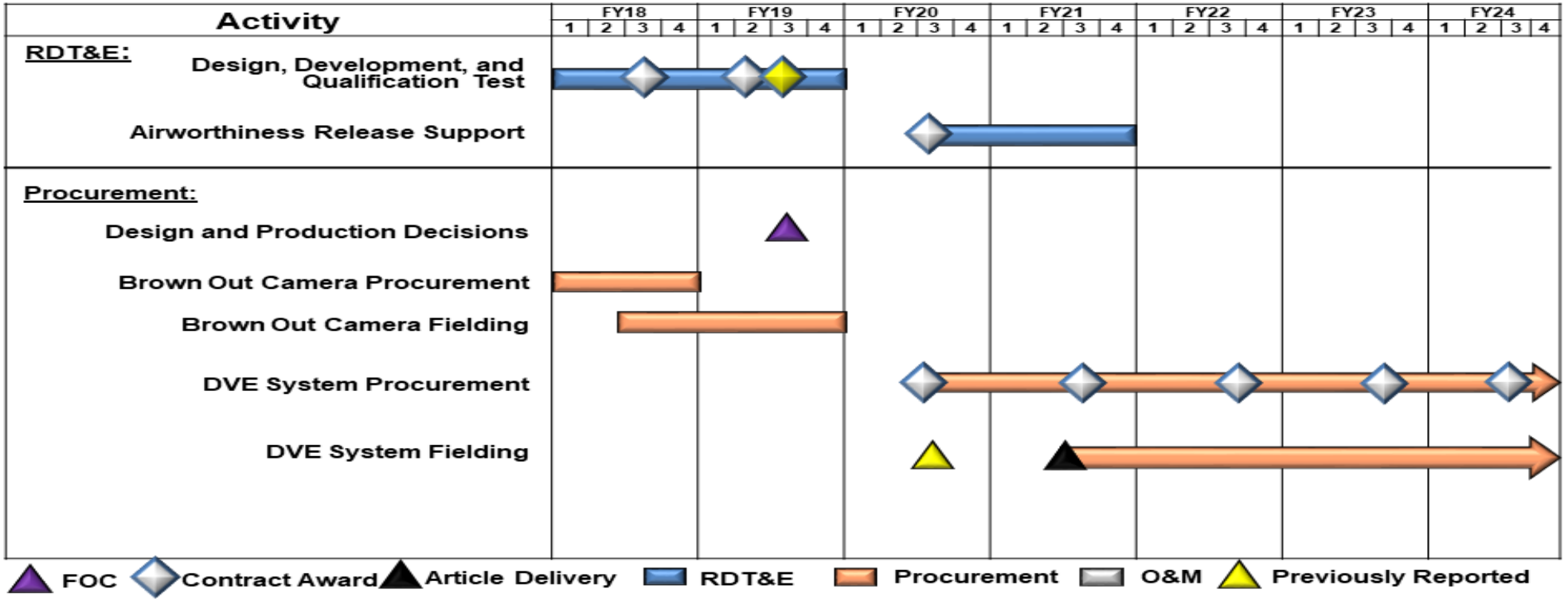

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Future Vertical Lift Schedule

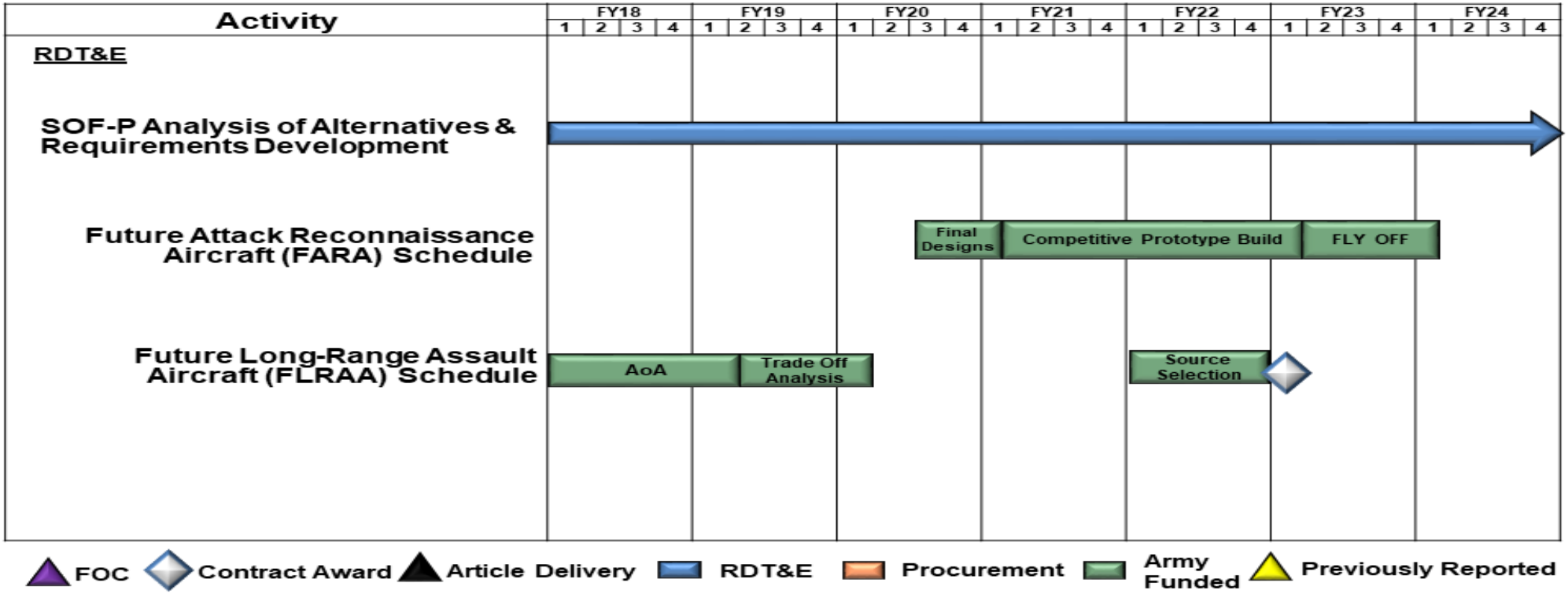

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

MH-47 Program Schedule

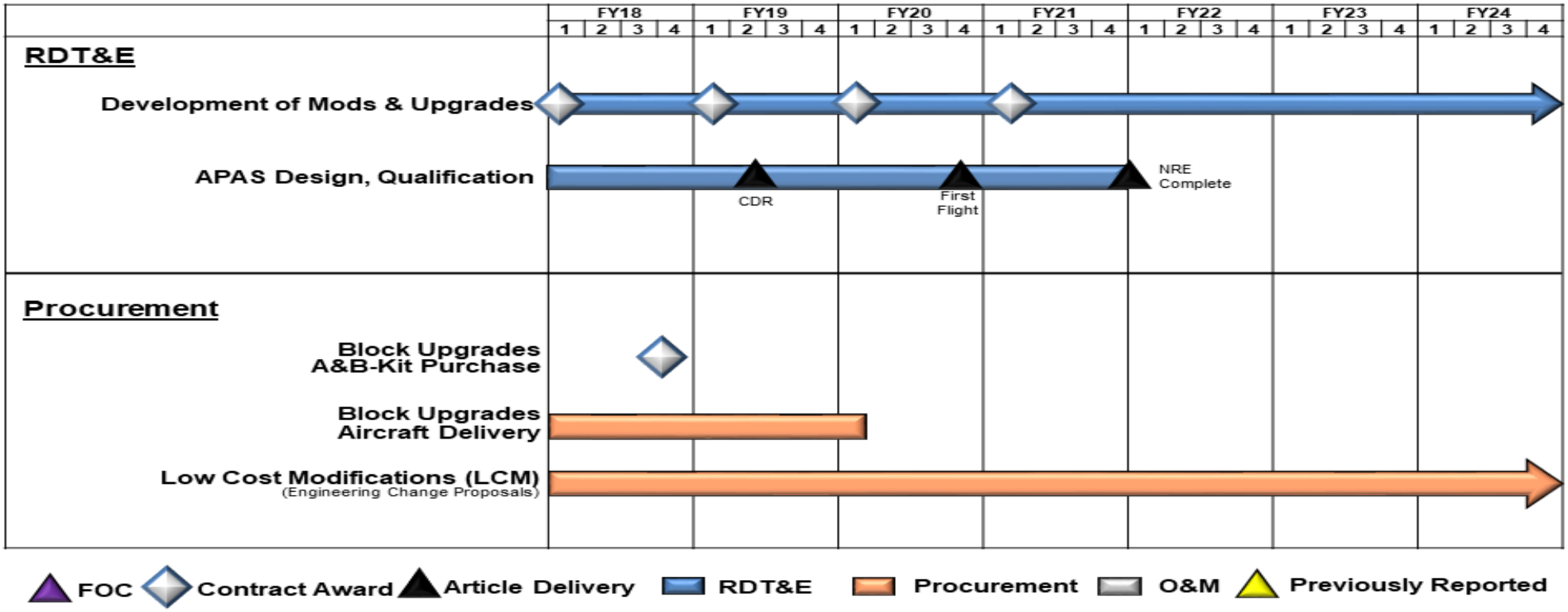

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Mission Processor Upgrades Schedule

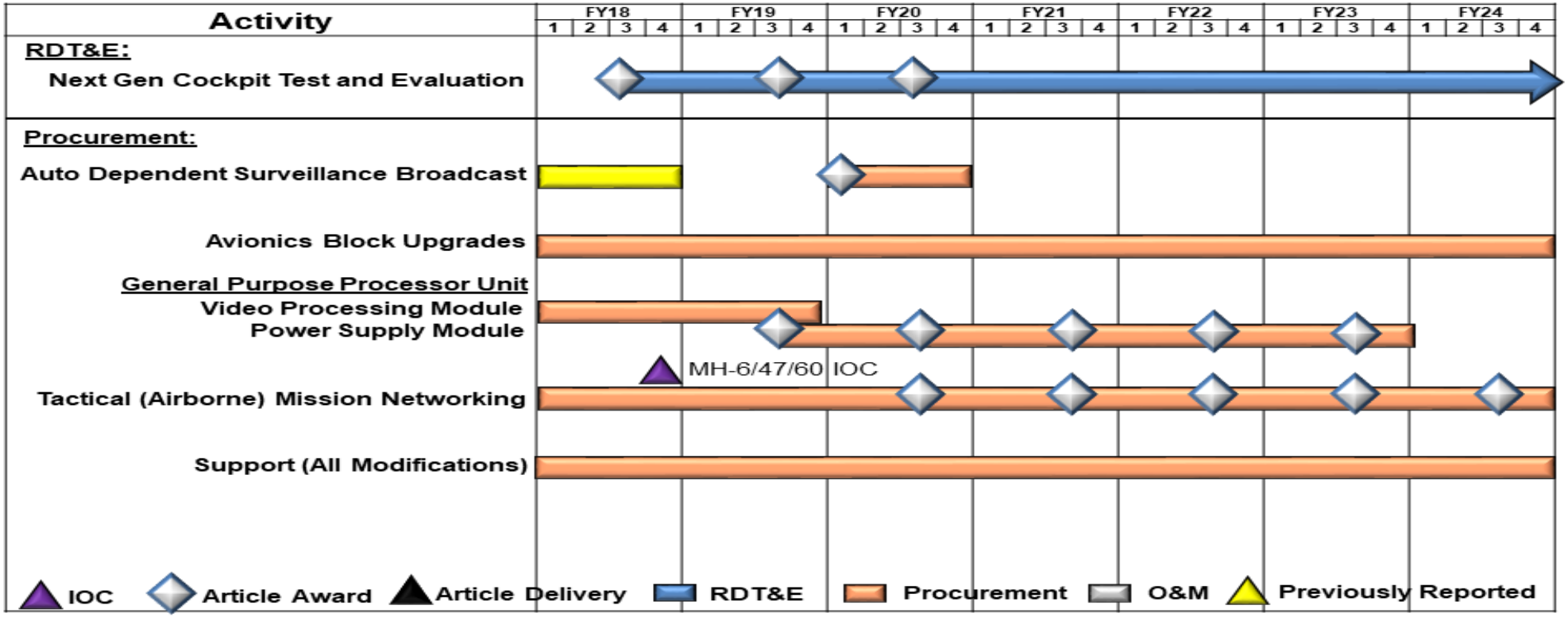

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Aircraft Survivability Equipment
IRCM Schedule

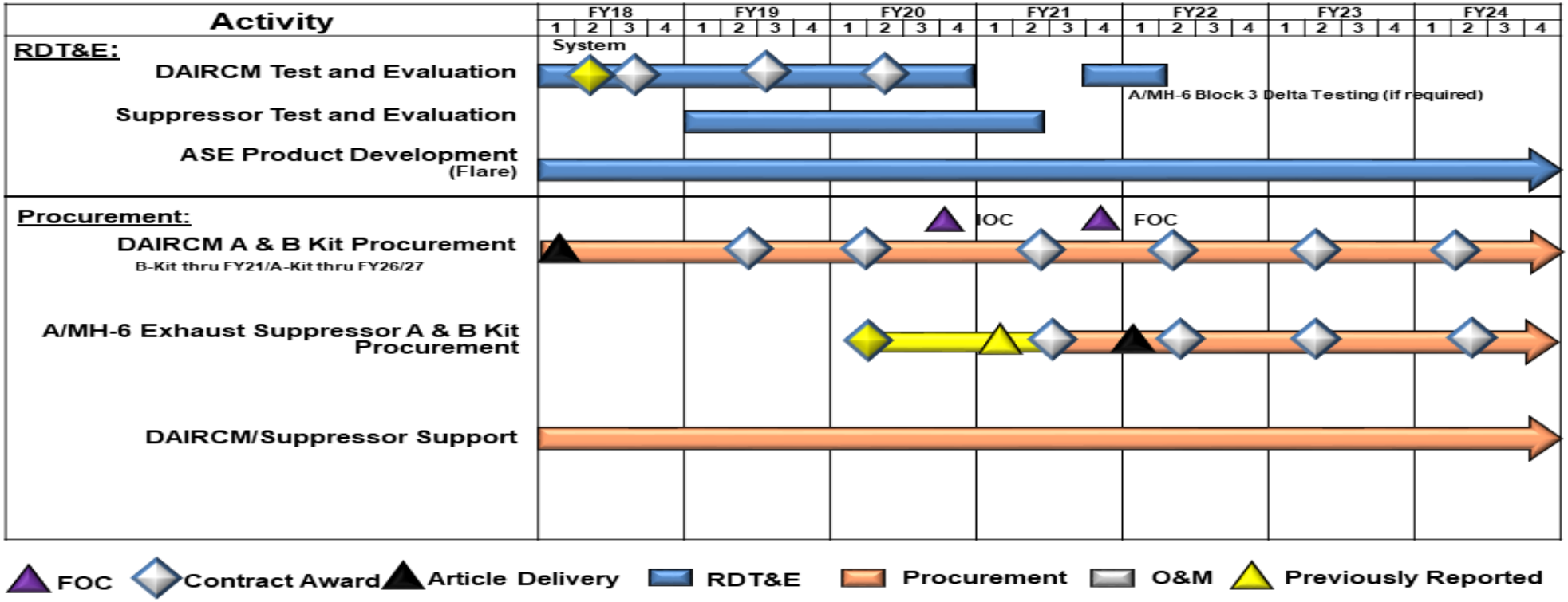

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
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Aircraft Survivability Equipment
RFCM Schedule

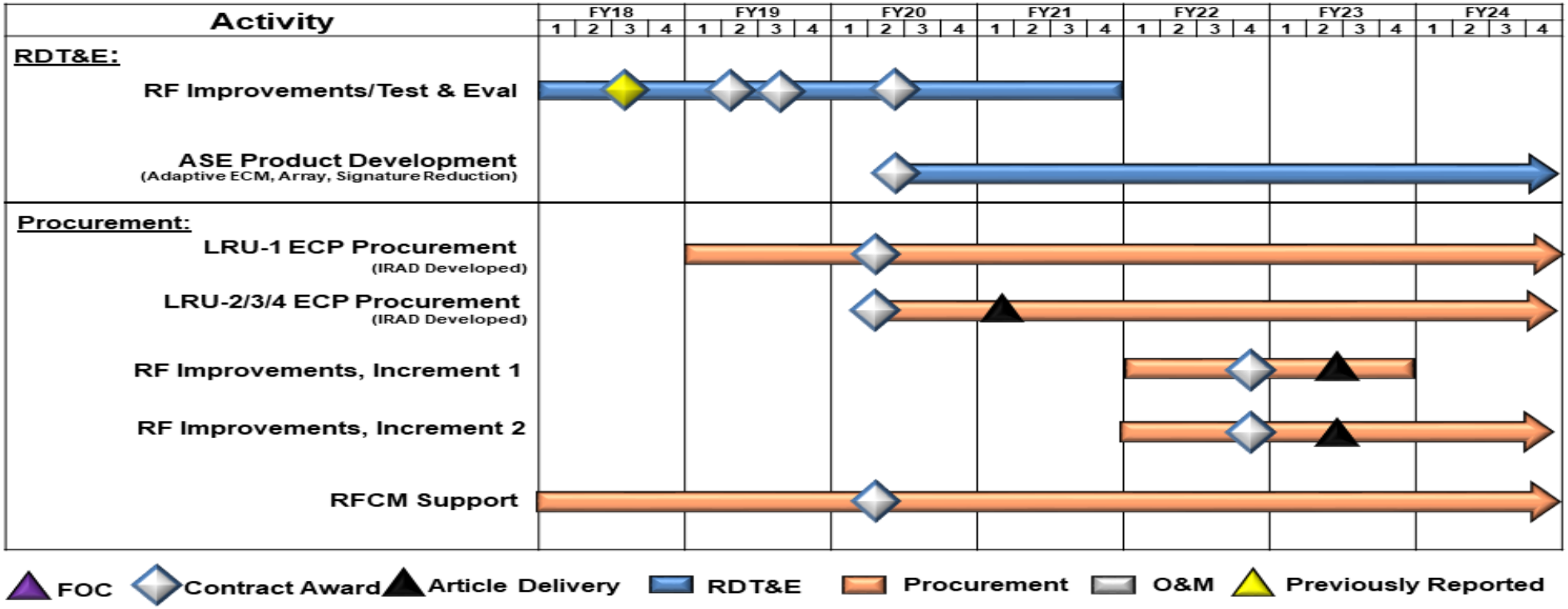

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
A/MH-6M Block 3.0 and Modifications				
Airframe Design and Qualification	1	2018	2	2018
Airworthiness and Flight Characteristics Testing	2	2019	2	2020
Avionics Design and Qualification	1	2018	2	2020
Modifications and Upgrades	1	2020	4	2024
MH-60M Modifications and Block Upgrades				
Modifications and Upgrades	1	2018	4	2024
Upturned Exhaust System (UES) II Development	1	2020	4	2020
Degraded Visual Environment				
Design, Development, and Qualification Test	1	2018	4	2019
Airworthiness Release Support	1	2020	4	2021
Future Vertical Lift				
SOF-P Analysis of Alternatives/Requirements Development	1	2018	4	2024
MH-47 Modifications and Block Upgrades				
Development of Modifications and Upgrades	1	2018	4	2024
Active Parallel Actuator Subsystem (APAS) Design, Qualification	1	2018	4	2021
Mission Processor Upgrades				
Next Gen Cockpit Exploration	3	2018	4	2024
Aircraft Survivability Equipment (ASE) Infrared Countermeasures (IRCM)				
DAIRCM Test and Evaluation	1	2018	4	2020
Suppressor Test and Evaluation	1	2019	2	2021
Product Development (Flare)	1	2018	4	2024
ASE Radio Freqency Countermeasures (RFCM)				

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160403BB / *Aviation Systems*	**Project (Number/Name)** D615 / *Rotary Wing Aviation*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
RF Imrovements, Increment 1	1	2018	4	2021
RF Imrovements, Increment 2	1	2018	4	2021
Product Development (Adaptive ECM, Array, Signature Reduction)	2	2020	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	576.045	8.837	10.625	15.484	-	15.484	17.974	16.729	16.181	16.567	Continuing	Continuing
S400: *SO Intelligence Systems*	576.045	8.837	10.625	15.484	-	15.484	17.974	16.729	16.181	16.567	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element is part of the Military Intelligence Program (MIP) that provides for the identification, development, rapid prototyping and testing of Special Operations Forces (SOF) intelligence equipment to identify and eliminate deficiencies in providing timely intelligence to deployed forces. Sub-projects address the primary areas of intelligence dissemination, sensor systems, tagging, tracking, and locating devices, integrated threat warning to SOF mission platforms, biometric/ forensic site exploitation and tactical exploitation of national system capabilities. USSOCOM has developed an overall strategy to ensure that Command, Control, Communications, Computers, and Intelligence (C4I) systems continue to provide SOF with the required capabilities into the 21st century. USSOCOM's C4I systems comprise an integrated network of systems providing positive command and control and timely exchange of intelligence and threat warning to all organizational echelons. The C4I systems that support this new architecture employ the latest standards and technology by transitioning from separate systems to full integration with the Global Information Grid (GIG). The GIG allows SOF elements to operate with any force combination in multiple environments.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	8.245	10.625	9.094	-	9.094
Current President's Budget	8.837	10.625	15.484	-	15.484
Total Adjustments	0.592	0.000	6.390	-	6.390
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.592	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	6.390	-	6.390

Change Summary Explanation

Funding:

FY 2018: Increase of $0.592 is due to a reprogramming into the National System Support to SOF program.

FY 2019: None.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*

FY 2020: Increase of $6.390 million due to an increase for the Joint Threat Warning System Maritime Electronic Intelligence Modular/Scalable open architecture and all variant Development and Testing efforts.

Schedule: None.

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / *Intelligence Systems Development*	Project (Number/Name) S400 / *SO Intelligence Systems*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S400: *SO Intelligence Systems*	576.045	8.837	10.625	15.484	-	15.484	17.974	16.729	16.181	16.567	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This sub-project is part of the Military Intelligence Program (MIP). Provides for the identification, development, testing, and rapid prototyping of Special Operations Forces (SOF) intelligence equipment to identify and eliminate deficiencies in providing timely intelligence to deployed forces. Sub-projects address the primary areas of intelligence dissemination, sensor systems, tagging, tracking, and locating devices, integrated threat warning to SOF mission platforms, and SOF-unique support from space systems, including Tactical Exploitation of National System Capabilities (TENCAP). The systems developed and tested in this line item are National Systems Support to SOF (NSSS); Joint Threat Warning System (JTWS); Hostile Forces - Tagging, Tracking, and Locating (HF-TTL); Special Operations Tactical Video System/ Reconnaissance, Surveillance, and Target Acquisition (TVS/RSTA); Special Operations Forces Planning, Rehearsal and Execution Preparation (SOFPREP); Integrated Survey Program (ISP); and Sensitive Site Exploitation (SSE).

U.S. Special Operations Command (USSOCOM) has developed an overall strategy to ensure that Command, Control, Communications, Computers, and Intelligence (C4I) systems continue to provide SOF with the required capabilities throughout the 21st century. USSOCOM's C4I systems comprise an integrated network of systems providing positive command and control and timely exchange of intelligence and threat warning to all organizational echelons. The C4I systems that support this new architecture employ the latest standards and technology by transitioning from separate systems to full integration with the Global Information Grid (GIG). The GIG allows SOF elements to operate with any force combination in multiple environments. The intelligence programs funded in this project will meet annual emergent requirements and are grouped by the level of organizational element they support: Operational Element (Team) and Above Operational Element (Garrison).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: NSSS	1.442	0.849	0.862	-	0.862
Description: This program provides research and development, and rapid prototyping to support HQ SOCOM TENCAP program and associated similar and supporting capabilities. NSSS improves the combat effectiveness of USSOCOM, its components, and the Theater Special Operations Commands (TSOC) by providing innovative space-based intelligence, surveillance, and reconnaissance technologies and system enhancements, products, and special communications capabilities to tactical SOF units. NSSS leverages current and developmental National systems to integrate with, augment, and support SOCOM systems. Focus areas include Geospatial Intelligence (GEOINT), Signals Intelligence (SIGINT), Special Communications, and intelligence fusion, reporting, and dissemination. NSSS efforts are characterized by rapid prototype development to transition to SOCOM Programs of Records. These developmental efforts usually support SOCOM's existing MIPs. NSSS will also improve SIGINT capabilities by pursuing Joint Interface Control Document 4.x and follow-on compliant					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
SIGINT capabilities, extending SOCOM's cross-domain security infrastructure by adding unclassified sensors into theater net-centric geo-location architecture, improving detection of Low-Probability of Intercept/Low Probability of Detection signals, and automating radar characterizations that enhance tactical SOF capabilities to find, fix, monitor, and target assets using National Technical Means in support of tactical operators. ***FY 2019 Plans:*** Continue development of SOF-required prototype capabilities, primarily through leveraging current or developing technologies and assets in the Intelligence Community (IC), while coordinating with SOCOM and IC Programs of Record for production and operational fielding of successful capabilities. Emphasis areas include Intelligence, Surveillance and Reconnaissance (ISR) support for Tagging, Tracking, and higher-accuracy geo-locating of hostile and friendly forces, especially in low sensor density environments, and providing timely intelligence to deployed forces. ***FY 2020 Base Plans:*** Continues development of SOF-required prototype capabilities, primarily through leveraging current or developing technologies and assets in the IC, while coordinating with SOCOM and IC Programs of Record for production and operational fielding of successful capabilities. Emphasis areas include ISR support for Tagging, Tracking, and higher-accuracy geo-locating of hostile and friendly forces, especially in low sensor density environments, and providing timely intelligence to deployed forces. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.013 million due to inflation adjustment.					
Title: JTWS ***Description:*** The JTWS System of Systems (SoS) enables the SOF Cryptologic Operator to collect, process, locate and exploit threat communications signals of interest in order to provide timely, relevant, and responsive intelligence, cross-cueing, and threat avoidance information directly to the SOF Commanders. The JTWS SoS is assembled in four variants: Ground SIGINT Kit; Maritime; Air; and Unmanned Aerial Systems (UAS). Each variant has additional requirements for Communications Intelligence, Electronic Intelligence, and Precision Geo-location. ***FY 2019 Plans:*** Continue evaluating interoperability of technologies on JTWS variants as well as continue testing of the various system of systems. Continues technical evaluation of evolving technologies for all variants in order to provide	5.335	4.532	11.945	-	11.945

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
additional capabilities to address emerging threats. Continues modular/scalable open architecture Development & Testing (D&T). ***FY 2020 Base Plans:*** Continues evaluating interoperability of technologies on JTWS variants as well as continue testing of the various system of systems. Continues technical evaluation of evolving technologies for all variants in order to provide additional capabilities to address emerging threats. Begins development of an Electronic Intelligence (ELINT) rapid prototyping capability for the Maritime system. Continues modular/scalable open architecture D&T. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $7.413 million due to Maritime ELINT ($2.098), Modular/Scalable Open Architecture Development & Testing ($1.800) and All Variants D&T ($3.515) JTWS efforts.					
Title: HF-TTL	0.811	0.709	1.078	-	1.078
Description: This program provides SOF with the necessary tools to find, fix, and finish target assets through the emplacement of sophisticated tags and devices that feed into an integrated architecture. HF-TTL provides Global Combatant Commanders (GCC) and SOF operators with an immediate capability to tag, track, and locate people, things, and activities. The HF-TTL program provides actionable intelligence for SOF mission planners. The mission sets comprise a mix of different classes of tags and their associated detection, interrogation, viewing, tracking, and communications systems that are fielded annually to SOF Components and TSOC based upon dynamic and emergent SOF operational requirements. ***FY 2019 Plans:*** Continue rapid prototyping, specialized device modifications, product development support, integration, and operational testing and evaluation in support of UAS payload integration, maritime specialized tag development, and Low Probability of Intercept (LPI) – Low Probability of Detection (LPD) waveform refinements. ***FY 2020 Base Plans:*** Continues rapid prototyping, specialized device modifications, product development support, integration and operational testing and evaluation in support of UAS payload integration, maritime specialized tags development, and LPI-LPD waveform refinements. ***FY 2019 to FY 2020 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Increase of $0.369 million due to minor adjustments for rapid prototyping and additional product development focused on maritime TTL capabilities development.					
Title: TVS/RSTA ***Description:*** This program provides SOF with critical Special Reconnaissance (SR) equipment that directly supports the planning and execution of SOF missions. This capability allows the SOF warfighter to meet SOF SR mission requirements to find, fix, finish, exploit, analyze, and disseminate information of an adversary's movement, construct, identification, location; and associated activities. TVS/RSTA provides GCC and SOF operators with an immediate capability to visually and electronically acquire people, things, and activities and provides actionable intelligence for SOF planners and Commanders. The program Family of Systems (FoS) consists of interoperable equipment to capture and transfer near-real-time ground-based, tactical day/night/ reduced visibility, imagery, video, and electronic proximity and movement sensing, all capable of dissemination through SOF organic, global C4I, and commercial communications infrastructures. ***FY 2019 Plans:*** Continue specialized device modifications, integration and operational testing and evaluation. ***FY 2020 Base Plans:*** Continues specialized device modifications, integration and operational testing and evaluation. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.152 million for rapid prototyping and product improvement.	0.393	0.564	0.716	-	0.716
Title: SOFPREP ***Description:*** This program serves as the intelligence focal point for production of SOF enhanced GEOINT (maps, imagery, and terrain data) and 3D scene visualization databases. SOFPREP gathers, processes, exploits, disseminates, and manages classified high resolution 3D databases and GEOINT data in support of SOF training, mission rehearsal, and execution preparation systems. The program builds the SOF common geospatial environment and manages the authoritative database of SOF-specific GEOINT terrain data. SOFPREP is a NGA-certified co-producer in support of time-sensitive SOF specific requirements. ***FY 2019 Plans:***	0.291	3.376	0.280	-	0.280

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continue testing and evaluation of operational prototype systems to speed production of correlated high resolution 3D geospatial databases. ***FY 2020 Base Plans:*** Continues testing and evaluation of operational prototype systems to speed production of correlated high resolution 3D geospatial databases. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of $3.096 million due to the completion of high performance computing modernization efforts performed in FY19.					
Title: ISP ***Description:*** This program collects and produces current, detailed, tactical planning data to support military operations to counter threats against U.S. citizens, interests, and property located both domestically and overseas. ISP products are specifically tailored packages that provide operational information, as well as intelligence data for use by DOD and the U.S. Department of State to support operational planners for counter-terrorism operations, evacuations, and other rescue missions. ***FY 2019 Plans:*** Continue development and rapid fielding of ISP system and products to integrate with enterprise architecture and support the latest standards and technology. ***FY 2020 Base Plans:*** Continues development and rapid fielding of ISP system and products to integrate with enterprise architecture and support the latest standards and technology. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.006 million is due to inflation adjustment.	0.384	0.409	0.415	-	0.415
Title: SSE ***Description:*** This program uses rapid test and evaluation of emerging Biometric and Forensic technology to provide state-of-art capabilities to the warfighter thus allowing for exploitation of personnel, documents, electronic data, materiel, and forensic evidence on sensitive sites/objectives. Biometric kits allow collection and transmission of unique, measurable biometric signatures from personnel, including live/latent fingerprints, iris patterns, and facial features. It also provides a means to verify against and enroll subjects into the DOD authoritative database, and to query that database to support hold or release decisions. Forensic kits enable	0.181	0.186	0.188	-	0.188

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
on-objective linking of events to specific persons through chemical analysis, latent fingerprints, cell phones and computer data analysis, and deoxyribonucleic acid collection. Exploitation Analysis Centers provide theater-level mobile forensic capabilities for more in-depth exploitation of captured evidence. ***FY 2019 Plans:*** Continue technical evaluation of new technologies. ***FY 2020 Base Plans:*** Continues technical evaluation of new technologies. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.002 million is due to inflation adjustments.					
Accomplishments/Planned Programs Subtotals	8.837	10.625	15.484	-	15.484

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/020400INTL: *Intelligence Systems*	124.408	102.199	100.641	16.500	117.141	118.285	133.465	147.271	150.003	Continuing	Continuing

Remarks

D. Acquisition Strategy

• NSSS introduces and integrates national systems capabilities into the SOF force structure and operations. This is accomplished by partnering with existing IC and SOCOM programs of record to incorporate SOF mission requirements into current and developing technologies and assets. This leveraging of funds increases national and commercial systems awareness, demonstrates the tactical utility of national systems and commercial data, test technologies and evaluates operational concepts in biennial Joint Staff Special Projects, and allows for the transition of promising concepts and technologies to other SOF program offices for execution.

• JTWS is a SoS leveraging commercial technologies and partnerships with other government agencies. The Programs of Records (POR) will leverage Commercial Off The Shelf (COTS)/Government Off The Shelf/ and Non-Developmental Item capabilities requiring minimal modifications wherever possible. JTWS is making deliberate investments to evolve the program into modular/scalable systems with a framework supporting open architecture in order to provide common solutions across the variants, increase interoperability, and reduce duplication of efforts. JTWS will address the continuously evolving threat environments on the Ground, Air, Maritime, and Unmanned Aircraft System variants, leverage existing partnerships with the National Security Agency and other government partners to integrate and sustain systems based on prioritized need from the Components and as emerging threats require technology modernizations. The contracting strategy is a mixture of full and open competition for prime integrators and leveraging existing Indefinite Delivery/Indefinite Quantity (IDIQ) contracts for COTS procurement.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

• HF-TTL utilizes an acquisition strategy to provide highly sophisticated TTL and close target audio/video devices capable of operating in various environments as needed to meet SOF operational requirements. Commercial and government agency sources will be leveraged for required certifications, device level modifications, integration, functional, and operational testing and evaluations.

• TVS/RSTA employs an evolutionary strategy to incorporate the latest state of technology within its product line to provide upgraded next-generation technology insertion of COTS systems and address the changing threat environment to meet SOF reconnaissance and surveillance mission requirements. Commercial and government agency sources will be leveraged for required certifications, system level integration, functional, and operational testing and evaluations.

• SOFPREP employs an evolutionary strategy to insert emerging technologies for processing, exploitation and dissemination capabilities tailored to SOF user-defined mission requirements. Commercial and government agency sources are leveraged for required certifications, system level integration, functional, and operational testing and evaluations.

• ISP employs an evolutionary strategy to insert emerging technologies for collection, processing, exploitation and dissemination capabilities tailored to SOF user-defined mission requirements. Commercial and government agency sources are leveraged for required certifications, system level integration, functional, and operational testing and evaluations.

• SSE uses a commodity procurement rapid acquisition strategy to provide next-generation technologies for collection, processing, exploitation and dissemination capabilities supporting SOF exploitation mission requirements. Commercial and government agency sources are leveraged for required certifications, system level integration, functional, and operational testing and evaluations.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
National Systems Support to SOF (NSSS)	MIPR	Various : Various	16.763	1.442	Feb 2018	0.849	Feb 2019	0.862	Feb 2020	-		0.862	Continuing	Continuing	-
Joint Threat Warning System (JTWS)-Air Increment 2	MIPR	SPAWAR : Charleston, SC	7.805	0.428	Feb 2018	0.500	Dec 2018	0.510	Jan 2020	-		0.510	Continuing	Continuing	-
JTWS-Ground Sigint Kit (GSK), Inc 2	C/CPFF	Various : Various	20.933	0.932	Apr 2018	0.500	Jan 2019	0.510	Jan 2020	-		0.510	Continuing	Continuing	-
JTWS-Maritime	C/CPFF	Various : Various	9.340	0.623	Apr 2018	0.479	Apr 2019	2.577	Jan 2020	-		2.577	Continuing	Continuing	-
JTWS-All Variants	MIPR	Various : Various	2.704	-		0.393	Apr 2019	3.888	Apr 2020	-		3.888	Continuing	Continuing	-
Integrated Survey Program (ISP) - Development, Test and Evaluation	C/FFP	Various : Various	0.530	0.384	Jan 2018	0.409	Jan 2019	0.415	Jan 2020	-		0.415	Continuing	Continuing	-
Hostile Forces-Tagging Tracking, and Locating (HF-TTL)	C/CPFF	Various : Various	1.731	0.597	Feb 2018	0.489	Feb 2019	0.854	Feb 2020	-		0.854	Continuing	Continuing	-
Tactical Video System/ Reconnaissance, Surveillance, & Target Acquisition	MIPR	Various : Various	-	-		-		0.491	Jan 2020	-		0.491	Continuing	Continuing	-
Special Operations Forces Planning, Rehearsal & Execution Preparation (SOPREP) - Rapid Prototyping	C/Various	Various : Various	-	-		1.868	Feb 2019	-		-		-	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	461.047	-		-		-		-		-	0.000	461.047	-
		Subtotal	520.853	4.406		5.487		10.107		-		10.107	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JTWS Modular/Scalable D&T	C/CPFF	Various : Various	-	3.104	Oct 2018	2.360	Jan 2019	4.160	Jun 2020	-		4.160	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	8.296	-		-		-		-		-	0.000	8.296	-
		Subtotal	8.296	3.104		2.360		4.160		-		4.160	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JTWS Test Support	Various	Various : Various	7.594	0.248	Mar 2018	0.300	Mar 2019	0.300	May 2020	-		0.300	Continuing	Continuing	-
Tactical Video System/ Reconnaissance, Surveillance, & Target Acquisition	MIPR	ATEC : FT Huachuca, AZ	1.315	0.393	Jan 2018	0.564	Jan 2019	0.225	Jan 2020	-		0.225	Continuing	Continuing	-
HF-TTL	MIPR	ATEC : FT Huachuca, AZ	0.285	0.214	May 2018	0.220	May 2019	0.224	May 2020	-		0.224	Continuing	Continuing	-
Sensitive Site Exploitation	MIPR	JITC : FT Huachuca, AZ	0.157	0.181	Dec 2017	0.186	Dec 2018	0.188	Dec 2019	-		0.188	Continuing	Continuing	-
Special Operations Forces Planning, Rehearsal & Execution Preparation (SPREP) - Prototype Systems	C/FFP	Various : Various	0.564	0.291	Mar 2018	1.508	Jan 2019	0.280	Mar 2020	-		0.280	Continuing	Continuing	-
Prior Year Funding - Completed Efforts	Various	Various : Various	0.549	-		-		-		-		-	0.000	0.549	-
		Subtotal	10.464	1.327		2.778		1.217		-		1.217	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160405BB / *Intelligence Systems Development*	Project (Number/Name) S400 / *SO Intelligence Systems*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Funding - Completed Efforts	Various	Various : Various	36.432	-		-		-		-		-	0.000	36.432	-
		Subtotal	36.432	-		-		-		-		-	0.000	36.432	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	576.045	8.837		10.625		15.484		-		15.484	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

NSSS/TENCAP Program Schedule

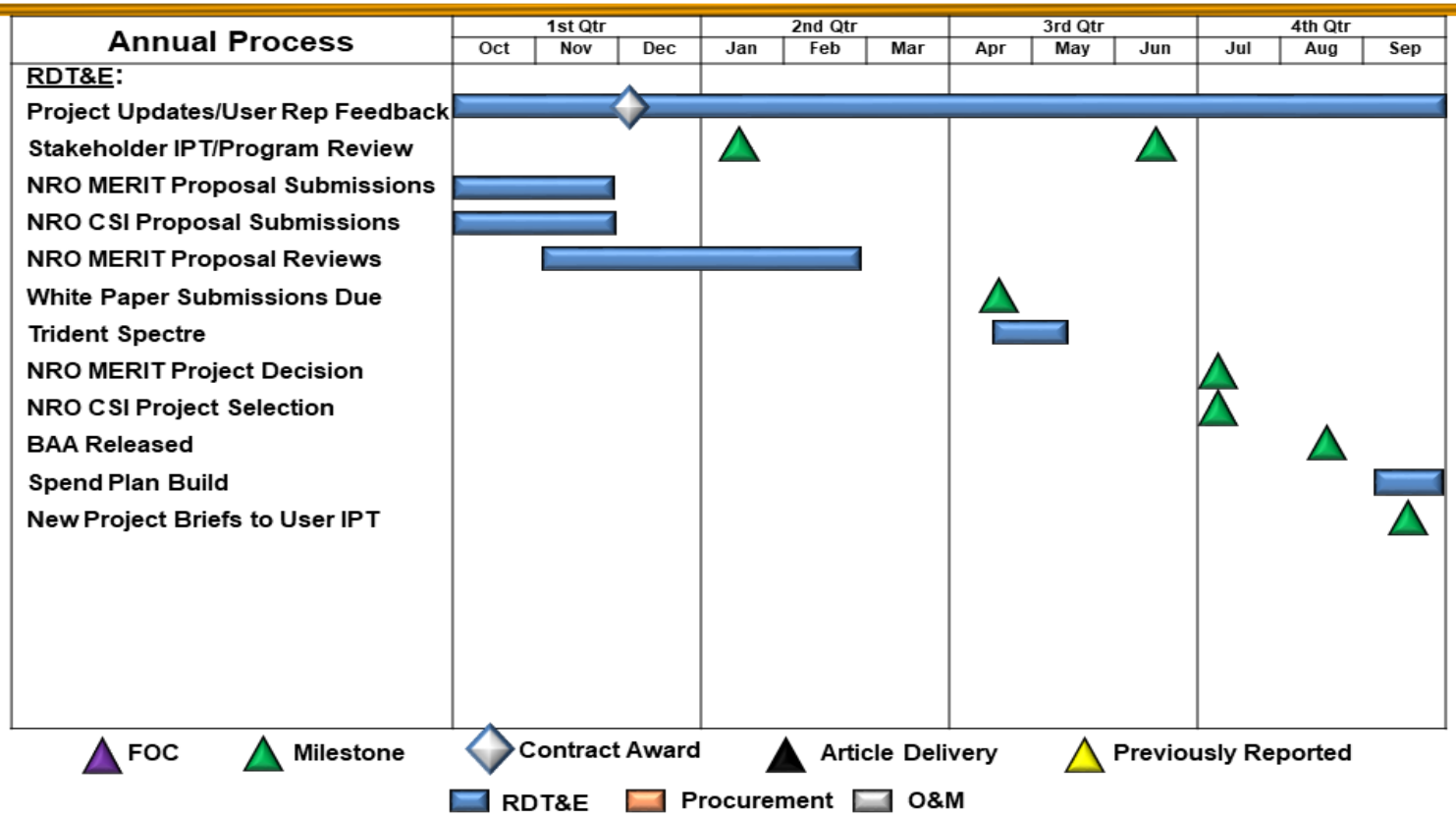

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

JTWS Schedule

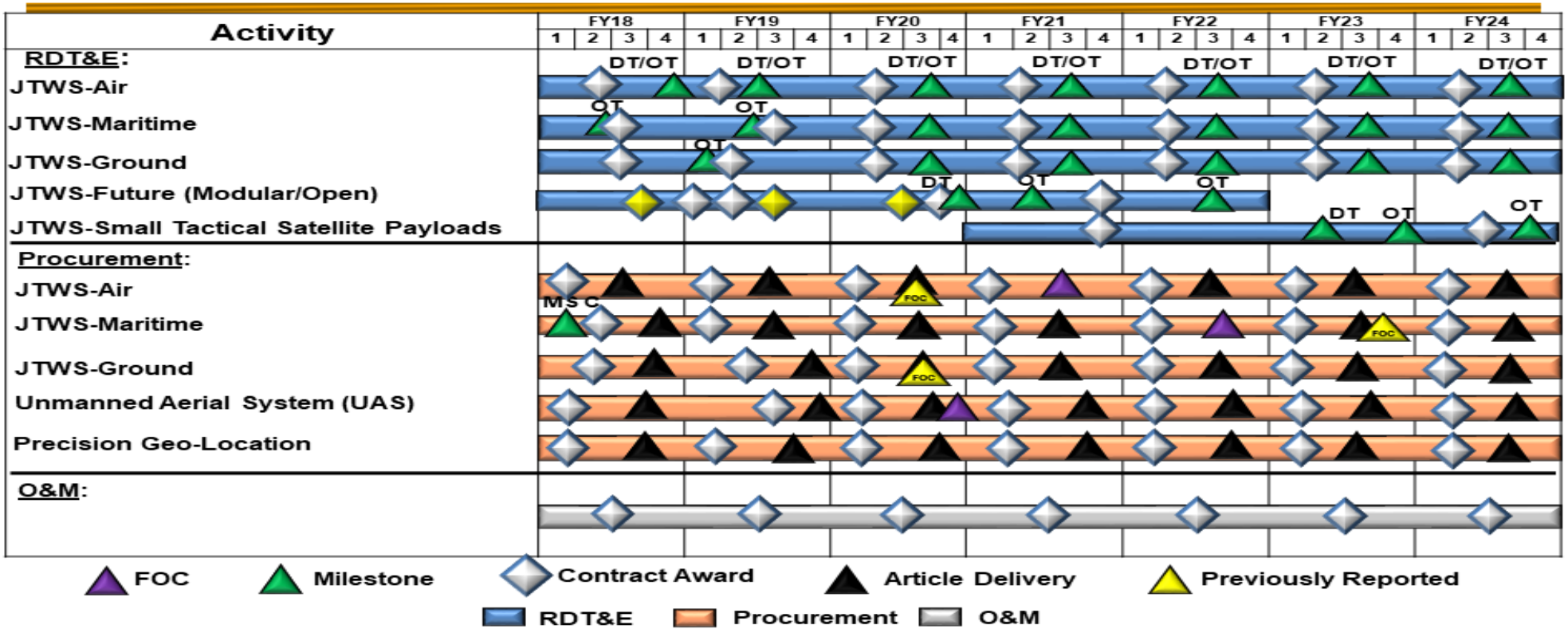

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

HF-TTL Schedule

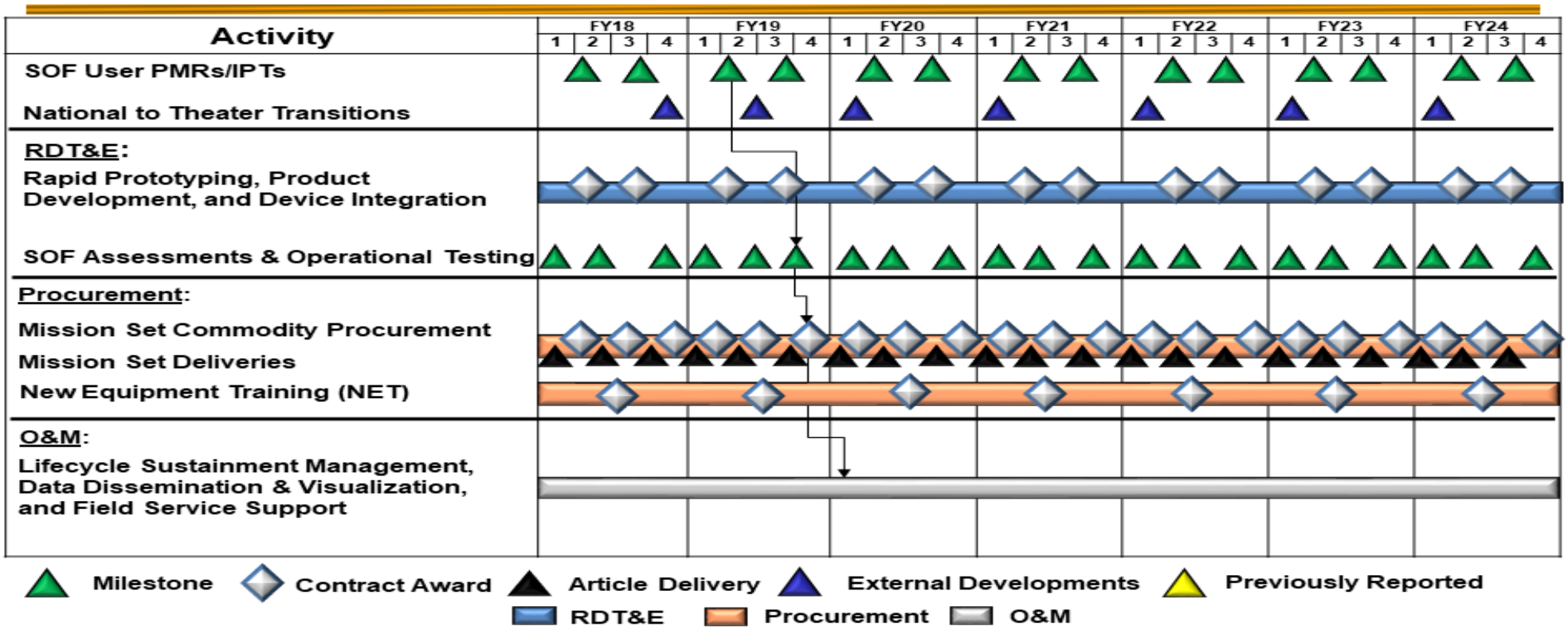

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

TVS/RSTA Schedule

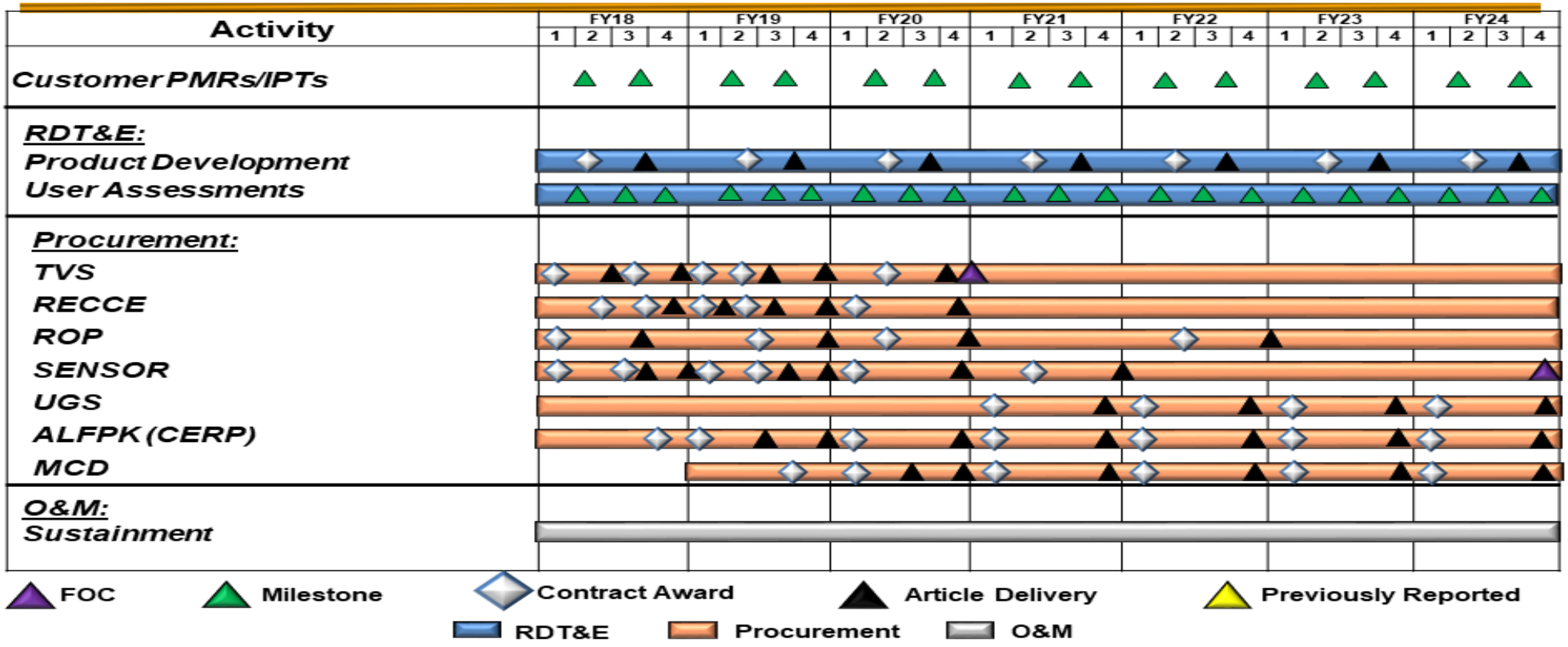

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

SOFPREP Schedule

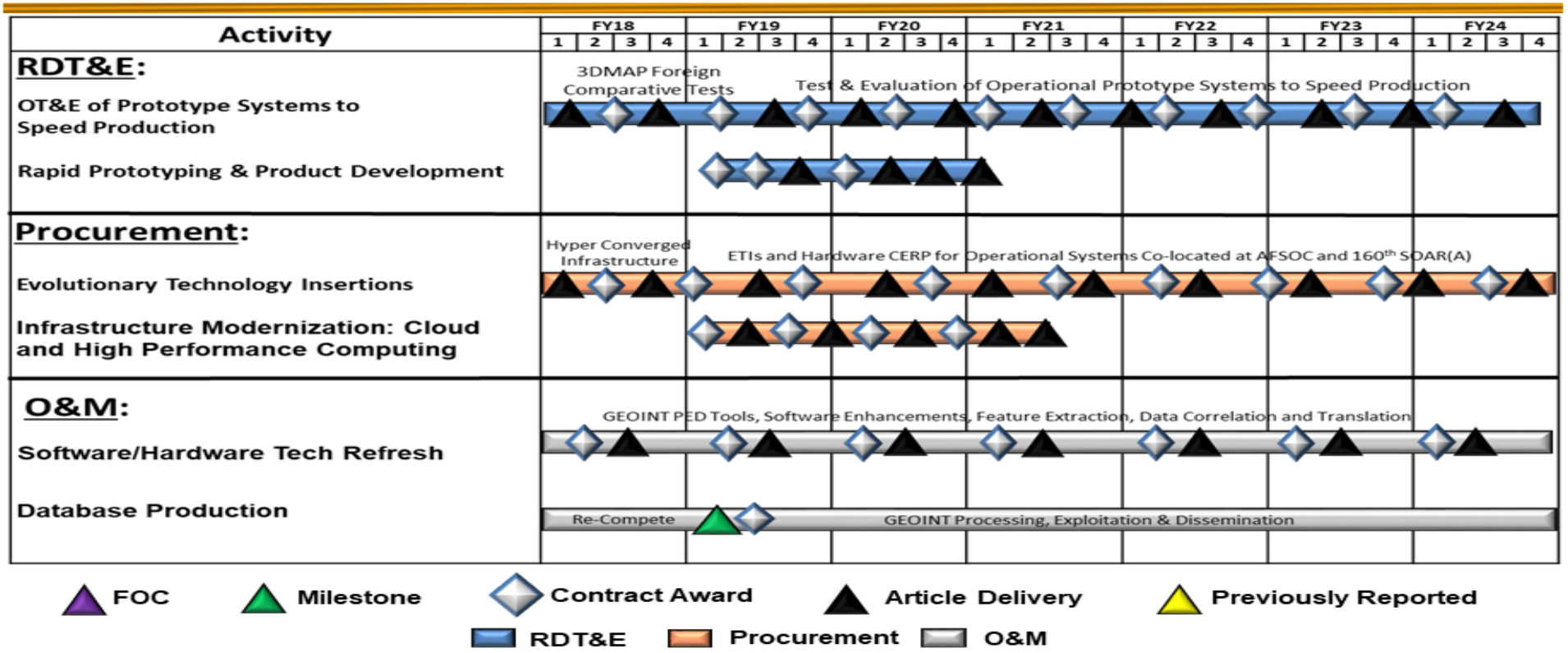

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

ISP Schedule

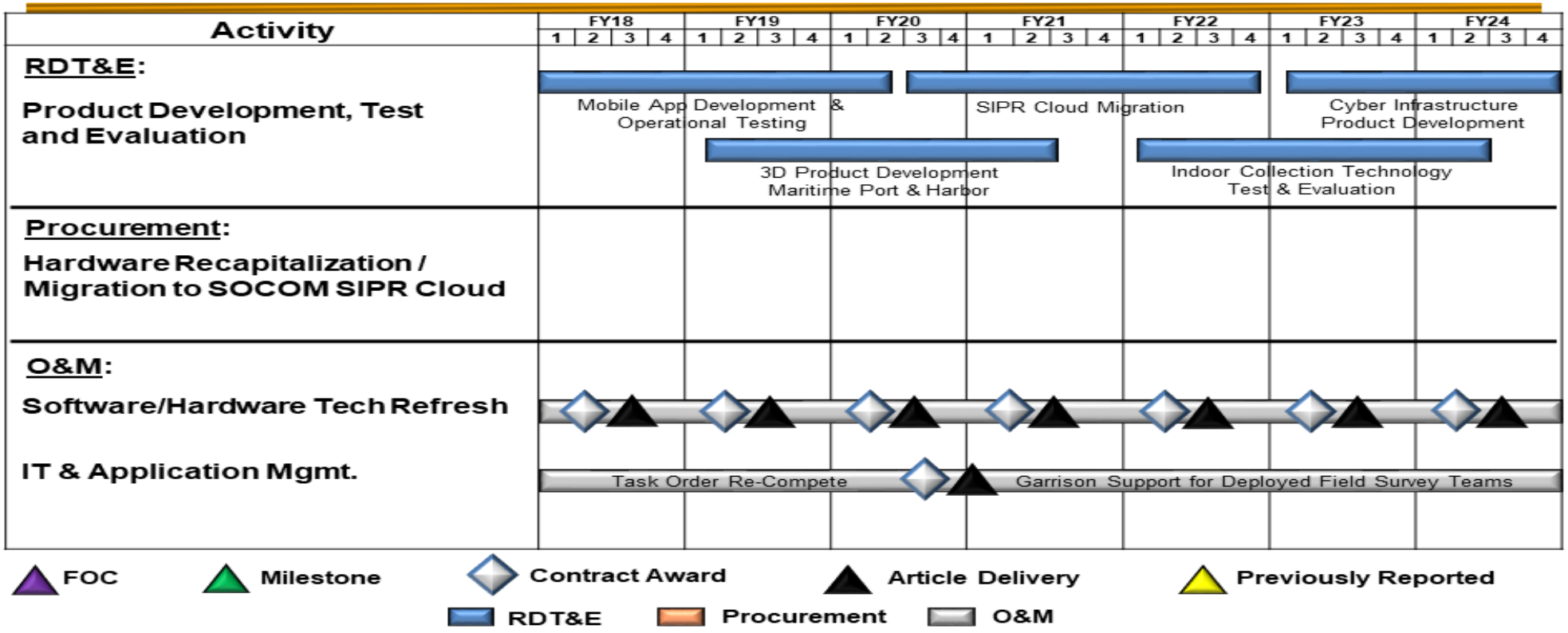

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160405BB / *Intelligence Systems Development*	**Project (Number/Name)** S400 / *SO Intelligence Systems*

Sensitive Site Exploitation Schedule

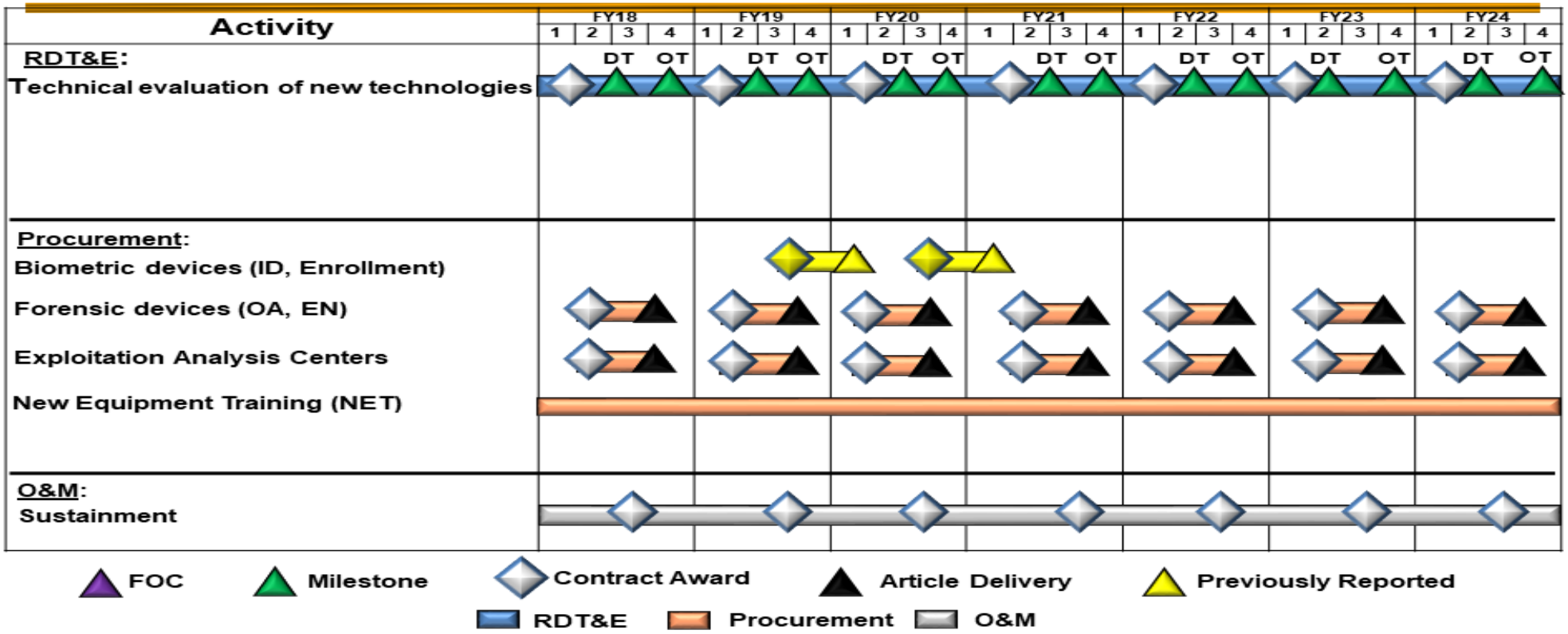

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
National Systems Support to SOF Participation in Space Technology Development and Integration				
National System Support to SOF Project Updates/User Rep Feedback	1	2020	4	2020
Joint Threat Warning System				
Air Variant Development, Test and Evaluation	2	2018	4	2024
Ground Sigint Kit Variant Development, Test and Evaluation	2	2018	4	2024
Maritime Variant Development, Test and Evaluation	3	2018	4	2024
JTWS Future (Modular/Open)	4	2018	4	2024
Hostile Forces - Tagging, Tracking, and Locating				
Product Development	2	2018	4	2024
Device Integration and Operational Testing	4	2018	4	2024
Special Operations Tactical Video System				
System Integration and Operational Testing	1	2018	4	2024
Product Development	1	2018	4	2024
Special Operations Forces Planning, Rehearsal & Execution Preparation				
Product Development and Operational Test and Evaluation	1	2018	4	2024
Integrated Survey Program				
Product Development	1	2018	4	2024
Sensitive Site Exploitation				
System Integration and Operational Testing	1	2018	4	2024

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160408BB / *Operational Enhancements*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	1,368.641	73.734	102.939	166.922	0.726	167.648	157.271	156.432	151.166	148.329	Continuing	Continuing
S500A: *Operational Enhancements*	1,368.641	73.734	102.939	166.922	0.726	167.648	157.271	156.432	151.166	148.329	Continuing	Continuing

A. Mission Description and Budget Item Justification

Details are provided under separate cover.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	81.375	102.939	132.143	-	132.143
Current President's Budget	73.734	102.939	166.922	0.726	167.648
Total Adjustments	-7.641	0.000	34.779	0.726	35.505
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-8.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	2.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.631	-			
• Other Adjustments	0.990	-	34.779	0.726	35.505

Change Summary Explanation

Funding:

FY2018: Net decrease of -$7.641 million is due to congressional directed reductions of -$8.000 million; congressional adds of $2.000 million, transfer of funds to Small Business Innovative Research/Small Business Technology Transfer programs (-$2.631 million) and an other adjustment increase of $0.990 million. Details available under separate cover.

FY2019: None.

FY2020: Increase of $35.505 million due to an increase baseline funding of $34.779 million and Overseas Contingency Operations of $0.726 million. Details available under separate cover.

Schedule: None.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160408BB / *Operational Enhancements*

Technical: None.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	137.508	74.169	74.582	62.332	6.000	68.332	55.337	44.502	48.808	49.794	Continuing	Continuing
D476: *Military Information Support Operations*	14.823	27.307	9.942	2.937	-	2.937	2.945	1.785	1.822	1.864	Continuing	Continuing
S375: *Weapons Systems*	3.404	1.425	1.198	1.625	-	1.625	1.604	1.529	1.561	1.597	Continuing	Continuing
S385: *Soldier Protection and Survival Systems*	17.555	2.078	10.501	8.918	6.000	14.918	10.874	10.840	10.935	11.049	Continuing	Continuing
S385A: *Body Armor and Associated Equipment*	6.330	1.242	1.048	1.752	-	1.752	1.738	1.694	1.729	1.770	Continuing	Continuing
S395: *Visual Augmentation, Lasers and Sensor Systems*	11.383	0.940	1.257	3.212	-	3.212	2.171	2.097	2.132	2.174	Continuing	Continuing
S700: *Communications Equipment and Electronics Systems*	21.643	9.294	13.966	18.519	-	18.519	21.852	17.040	16.487	16.862	Continuing	Continuing
S710: *Tactical Systems Development*	4.400	2.327	4.240	3.313	-	3.313	3.344	3.105	3.170	3.244	Continuing	Continuing
S725: *Tactical Radio Systems*	13.304	12.704	4.660	11.315	-	11.315	7.940	2.572	2.633	2.701	Continuing	Continuing
S800: *Munitions Advanced Development*	44.666	16.852	27.770	10.741	-	10.741	2.869	3.840	8.339	8.533	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for development, rapid prototyping, testing, and integration of specialized equipment in the areas of automation, communication, radio, weapon, soldier protection and survival, visual augmentation, lasers and sensors, munition and Military Information Support Operations (MISO) systems. Warrior Systems specialized equipment will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. Special Operation Forces (SOF) must infiltrate by land, sea, and air to conduct unconventional warfare, direct action, or deep reconnaissance operations in denied areas against insurgent units, terrorists, or highly sophisticated threat forces. The requirement to operate in denied areas controlled by a sophisticated threat mandates that SOF systems remain technologically superior to threat forces to ensure mission success. The efforts within this PE improve SOF warfighting capabilities by continuing efforts to develop smaller, lighter, more efficient and more robust capabilities. The SOF mission mandates that SOF systems remain technologically superior to any threat to provide a maximum degree of survivability while, generally, being conducted in harsh environments for unspecified periods and in locations requiring small unit autonomy. Communications efforts will maintain a Command, Control, and Communications (C3) link between SOF Commanders and SOF Teams, and provide interoperability with all Services, various agencies of the U.S. Government, Air Traffic Control, commercial agencies and allied foreign forces. Efforts relating to soldier protection and

survival requirements will improve survivability and mobility of SOF while conducting varied missions. Counter Unmanned Arial Systems (C-UAS) efforts rely on cutting edge detection sensors, both passive and active, paired with kinetic and non-kinetic defeat systems will allow SOF Operators to conduct Special Forces missions in denied and hostile environments worldwide. Specialized visual augmentation, lasers and sensors will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. Munition efforts include advanced engineering operational system development and qualification efforts related to SOF-peculiar munitions and equipment. Additionally, MISO efforts include planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately, the behavior of foreign governments, organizations, groups and individuals. This R-1 program element includes $6.000 million of FY2020 enduring Overseas Contingency Operations funding.

MISO:
This project provides for the development, test and integration of MISO equipment. MISO are planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately, the behavior of foreign governments, organizations, groups, and individuals. This project funds transformational systems and equipment to conduct the seven phase MISO process (planning, targeting audience analysis, series development, product development and design, approval, production/distribution/dissemination, and measures of effectiveness) in support of combatant commanders.

Weapons Systems:
This project provides for next generation system development and pre-planned product improvements (P3I), testing, and integration of specialized weapon systems and weapon accessories to meet the unique requirements of SOF. Efforts include muzzle brakes and suppressors, and P3I for assault, sniper, and crew served weapons leveraging the latest technological advances to achieve overmatch capability against emerging threats.

Soldier Protection and Survival Systems:
This project provides for the development, testing, integration, rapid prototyping, and evaluation of specialized equipment, to meet the unique soldier protection and survival requirements of SOF in varied missions; counter-improvised explosive device systems, to meet continually emerging Counter Radio Controlled-Improvised Explosive Device (RC-IED) threats; C-UAS (aerial, ground and maritime) to mitigate and defeat the emerging and rapidly evolving unmanned system threats; and signature reducing materials and technologies, to reduce the probability of detection by battlefield threat sensors. C-UAS Family of Systems supports the development, integration and testing of Counter Unmanned (Aerial, Ground, Maritime) Sensor Integration Module (SIM) Family of Systems that enhance the Soldier's ability to detect, track, identify, exploit and defeat specific stand-off unmanned weapon threats, and to acquire objects of military significance before the Soldier is detected and to target threat objects accurately for engagement by soldiers counter-UAS defeat capabilities.

Body Armor and Associated Equipment:
This project provides specialized equipment with ballistic protection to meet the unique soldier protection and survival requirements of SOF. Specialized ballistic equipment improves survivability and load bearing equipment impacting the mobility of SOF while conducting varied missions. This project enhances the SOF Personal Equipment Advanced Requirements program by providing for the research, development, and testing of body armor plates, soft armor, helmets, eye protection, and other personal protective equipment to meet current ballistic threats that exist on the battlefield.

Visual Augmentation, Lasers and Sensor Systems:

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*

This project provides for development, testing, and integration of specialized visual augmentation, laser and sensor systems equipment to meet the unique requirements of SOF and facilitate future Hyper-Enabled Operator capabilities. Programs in this area include binocular/monocular devices; next generation laser designation and geo-location systems; weapon aiming lasers, scopes and accessories; and training and simulation systems.

Communications Equipment and Electronics Systems:
This project provides for communication systems to meet emergent requirements to support SOF. SOF units require communications equipment that improves their warfighting capability without degrading their mobility. SOF Communications Equipment and Electronics is a continuing effort to develop smaller, lighter, more efficient and more robust SOF Command, Control, Communications, and Computer (C4) capabilities.

Tactical Systems Development:
This project provides for development, testing, and integration of specialized automation equipment to meet the unique requirements of SOF. Tactical systems provide forward deployed forces with advanced networking, automated data processing, storage, and display capabilities to support situational awareness, mission planning and execution, and command and control (C2) of forces.

Tactical Radio Systems:
This project is for the development of all SOF tactical radio programs. SOF units require radio communication equipment that improves their warfighting capability without degrading their mobility. United States Special Operations Command (USSOCOM) has developed an overall strategy to ensure that Tactical Radio Systems continue to provide SOF with the required capabilities throughout the 21st century. SOF Tactical Radios provide the critical C3 link between SOF Commanders and SOF Teams involved in operational missions and training exercises. They also provide interoperability with all Services, various agencies of the U.S. Government, Air Traffic Control, commercial agencies, and allied/coalition forces. Tactical Radios rapidly and seamlessly establish and maintain mobile and fixed C2 communications between infiltrated/operational elements and higher echelon headquarters, allowing SOF to operate with any force combination in multiple environments.

Munitions Advanced Development:
This project provides for the advanced engineering, operational system development, and qualification efforts related to SOF-peculiar and Foreign/Non-standard munitions and equipment. Funding supports development of Insensitive Munitions (IM) technology and evaluation, in accordance with statutory requirement set forth in U.S. Code, Title 10, Chapter 141, Section 2389 (December 2001). Testing is in accordance with the USSOCOM IM Strategic Plan. Funding also supports efforts to develop and improve Stand-Off Precision Guided Munitions (SOPGM), including the development and integration of improved warheads, seekers, guidance navigation and control systems, operational flight software, and missile delivery on to SOF platforms. SOPGM development efforts utilize, to the extent possible, Middle Tier Acquisition methods to rapidly explore, prototype, demonstrate, test, and field new capabilities for near-term combat requirements, such as autonomous and synchronized targeting and strike technology, precision guided projectile ammunition, munition-based aerial sensor delivery vehicles, and alternative precision navigation technologies.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	45.935	57.982	68.336	-	68.336
Current President's Budget	74.169	74.582	62.332	6.000	68.332
Total Adjustments	28.234	16.600	-6.004	6.000	-0.004
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-3.000	-5.900			
• Congressional Rescissions	-	-			
• Congressional Adds	35.500	22.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.397	-			
• SBIR/STTR Transfer	-2.869	-			
• Other Adjustments	-	-	-6.004	6.000	-0.004

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Project: D476: *Military Information Support Operations*		
Congressional Add: *Multi-Mission Payload (MMP) formerly known as Long Range Broadcast System (LRBS)*	16.860	-
Congressional Add: *Next Generation Loud Speakers (NGLS) and Scatterable Media*	5.781	6.000
Congressional Add Subtotals for Project: D476	22.641	6.000
Project: S385: *Soldier Protection and Survival Systems*		
Congressional Add: *Rotary Wing Aviation Helmet*	-	1.500
Congressional Add Subtotals for Project: S385	-	1.500
Project: S800: *Munitions Advanced Development*		
Congressional Add: *SOPGM*	11.557	15.000
Congressional Add Subtotals for Project: S800	11.557	15.000
Congressional Add Totals for all Projects	34.198	22.500

Change Summary Explanation

Funding:

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*

FY 2018: Net increase of $28.234 million due to congressional adds for Multi Mission Payload ($17.500 million); Next Generation Loud Speaker ($6.000 million); Small Glide Munition ($12.000 million); a transfer to Small Business Innovative Research/Small Business Technology Transfer programs (-$2.869 million); a congressional directed reduction to the SOF Deployable Node program (-$3.000 million) and reprogramming (-$1.397 million) for higher Command Priorities.

FY 2019: Net increase of $16.600 million is due to congressional adds for distributed audio media/next generation loudspeaker ($6.000 million); rotary wing aviation helmet ($1.500 million); Small Glide Munition Unmanned Aircraft System integration ($15.000 million); congressional directed reductions for RC-IED test/evaluation excess growth (-$1.900 million); and ordnance items developmental test/evaluation excess growth (-$4.000 million).

FY 2020: Net decrease of -$0.004 million due to Overseas Contingency Operations (OCO) to Base transfer (-$6.000 million) to OCO (+$6.000 million) and miscellaneous adjustments (-$0.004 million).

Schedule: None.

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / *Warrior Systems*	Project (Number/Name) D476 / *Military Information Support Operations*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
D476: *Military Information Support Operations*	14.823	27.307	9.942	2.937	-	2.937	2.945	1.785	1.822	1.864	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development and acquisition of Military Information Support Operations (MISO) equipment. MISO are planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately, the behavior of foreign governments, organizations, groups, and individuals. This project funds transformational systems and equipment to conduct MISO in support of combatant commanders.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Multi-Mission Payload (MMP) formerly known as Long Range Broadcast System (LRBS) ***Description:*** The MMP is a family of broadcast systems intended to be integrated into multiple manned and unmanned, long-loiter aerial systems with the capability of broadcasting in AM, FM, SW, TV, Very High Frequency (VHF), TV Ultra High Frequency (UHF) and cellular Short Message Service (SMS), Multi-Media Messaging Service, and Voice. This system provides the capability to broadcast MISO messages via multiple mediums into permissive, semi-permissive, and denied foreign areas. Additionally, the MMP is capable of supporting Electronic Warfare (EW) missions. ***FY 2019 Plans:*** Continue with primary development, systems engineering, and test and evaluation of pod-based cellular and television broadcast, power, and antenna technologies. ***FY 2020 Base Plans:*** Completes MMP-Medium development, test, and evaluation and begins MMP-Light development. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of $0.994 million is due to fewer testing requirements.	1.573	2.181	1.187	-	1.187
Title: Fly-Away Broadcast System (FABS) ***Description:*** FABS is a transit case fly-away broadcast system that utilizes commercial & industry standard technology to disseminate approved messaging to target audiences via FM, SW, cellular SMS and TV transmitter.	2.656	0.900	0.888	-	0.888

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** D476 / *Military Information Support Operations*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
FY 2019 Plans: Continue testing and evaluation of new systems and components to enhance MISO broadcasts. Continue with primary hardware development to reduce broadcast system weight and size while adding multi-mission capabilities. Integrate via the SOF Information Environment (SIE) with the Media Operations Center (MOC); Remote antennas for enhanced stand-off capability; Integrate with SOF Common Operating Picture (COP); Mobile Transmission Site Support Development with SOF Vehicles. ***FY 2020 Base Plans:*** Continues testing and evaluation of new systems and components to enhance MISO broadcasts. Continues with primary hardware development to reduce broadcast system weight and size while adding multi-mission capabilities. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of -$0.012 million due to minor adjustments.					
Title: Next Generation Loud Speakers (NGLS) ***Description:*** NGLS are portable systems capable of disseminating high quality recorded and live audio messages by MISO forces in varied geographical area and climate conditions. NGLS consists of Dismounted and Mounted variants that are lighter, smaller, and louder than legacy speaker systems, with added clarity and durability. A new variant of NGLS is the Scatterable Media (NGLS-SM), a hand-emplaced or air-delivered printed audio-visual device for disseminating delayed or on-cue messages to foreign target audiences. ***FY 2019 Plans:*** Continue testing and evaluation of new systems and components to enhance MISO broadcasts. Focuses on wireless, COP integration, and development to reduce broadcast system weight and size while adding multi-mission capabilities. ***FY 2020 Base Plans:*** Continues testing, development, and evaluation of new systems and components to enhance MISO broadcasts. Focuses on wireless capability with development to reduce broadcast system weight and size while adding multi-mission capabilities. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.001 million due to minor adjustments.	0.437	0.861	0.862	-	0.862
Accomplishments/Planned Programs Subtotals	4.666	3.942	2.937	-	2.937

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** D476 / *Military Information Support Operations*

	FY 2018	FY 2019
Congressional Add: Multi-Mission Payload (MMP) formerly known as Long Range Broadcast System (LRBS) ***FY 2018 Accomplishments:*** Congressional add for Multi Mission Payload ($16.860 Million).	16.860	-
Congressional Add: Next Generation Loud Speakers (NGLS) and Scatterable Media ***FY 2018 Accomplishments:*** Congressional add Next Generation Loud Speaker and Scatterable Media ($5.781 million). ***FY 2019 Plans:*** Congressional add distributable audio media and Next Generation Loud Speaker ($6.000 million).	5.781	6.000
Congressional Adds Subtotals	22.641	6.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC1/0204OTHER: *OTHER ITEMS <$5M*	52.718	119.427	103.910	0.028	103.938	149.394	81.064	107.128	68.215	Continuing	Continuing

Remarks

None.

D. Acquisition Strategy

• The MMP program has a traditional acquisition development and procurement strategy with accelerated development that includes increased flight test and multiple combat evaluations.

• The FABS program has an evolutionary acquisition strategy. Commercial and government agency sources will be leveraged for required certifications, functional and operational tests, and acceptance support.

• The NGLS program has an evolutionary acquisition strategy for the legacy NGLS Mounted and Dismounted and an incremental acquisition strategy for new developmental variants (NGLS-Scatterable Media, NGLS-Sonic Projection). Commercial and government agencies will be leveraged for engineering, required certifications, functional and operating tests and acceptance support.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** D476 / *Military Information Support Operations*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Multi-Mission Payload (MMP)	MIPR	Various : Various	6.837	1.473	Jan 2018	2.038	Jan 2019	1.087	Jan 2020	-		1.087	Continuing	Continuing	-
MMP Congressional Add	MIPR	Various : Various	-	16.860	Mar 2018	-		-		-		-	0.000	16.860	-
Fly Away Broadcast Systems (FABS)	Reqn	Various : n/a	1.674	2.656	Aug 2018	0.900	Jan 2019	0.888	Jan 2020	-		0.888	Continuing	Continuing	-
Next Generation Loud Speakers (NGLS)	Allot	SOFSA : Lexington, KY	-	0.437	Jan 2018	0.761	Jan 2019	0.762	Jan 2020	-		0.762	Continuing	Continuing	-
NGLS Congressional Add	Allot	SOFSA : Lexington, KY	-	5.781	Mar 2019	6.000	Apr 2020	-		-		-	0.000	11.781	-
Prior Year	C/Various	Various : Various	5.846	-		-		-		-		-	0.000	5.846	-
		Subtotal	14.357	27.207		9.699		2.737		-		2.737	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MMP	MIPR	Various : Various	0.341	0.100	Jan 2018	0.143	Jan 2019	0.100	Jan 2020	-		0.100	Continuing	Continuing	-
NGLS	Allot	SOFSA : Lexington, KY	-	-		0.100	Jun 2019	0.100	Aug 2020	-		0.100	Continuing	Continuing	-
Prior Year	MIPR	Various : Various	0.125	-		-		-		-		-	0.000	0.125	-
		Subtotal	0.466	0.100		0.243		0.200		-		0.200	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	14.823	27.307		9.942		2.937		-		2.937	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** D476 / *Military Information Support Operations*

MMP Schedule

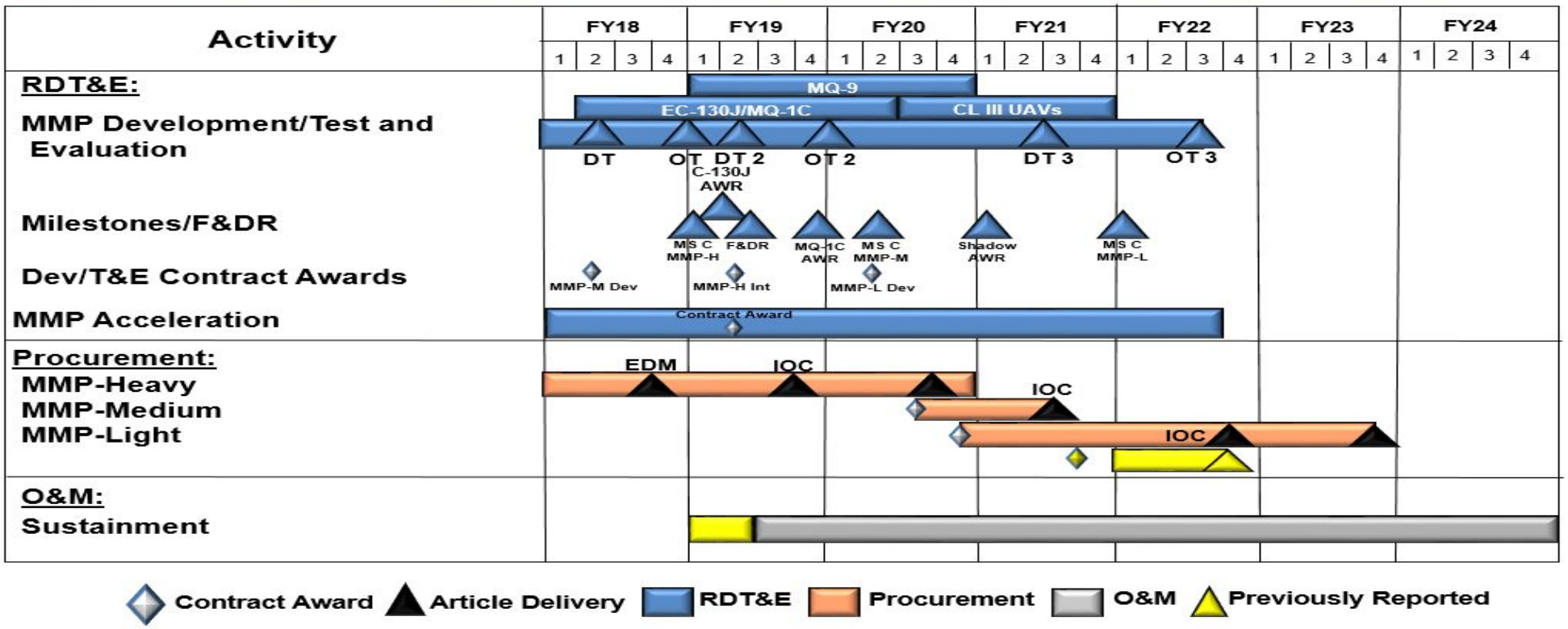

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** D476 / *Military Information Support Operations*

Fly Away Broadcast System Schedule

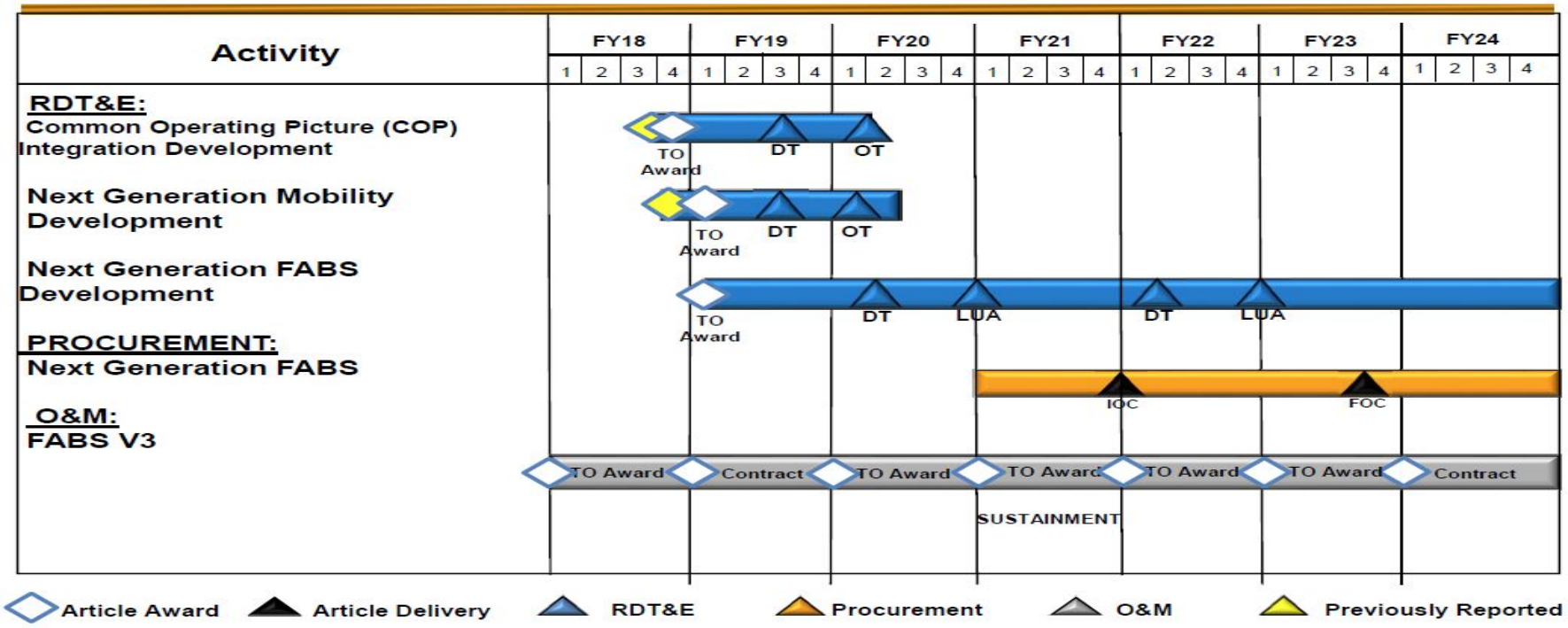

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** D476 / *Military Information Support Operations*

Next Generation Loudspeaker System (NGLS) Schedule

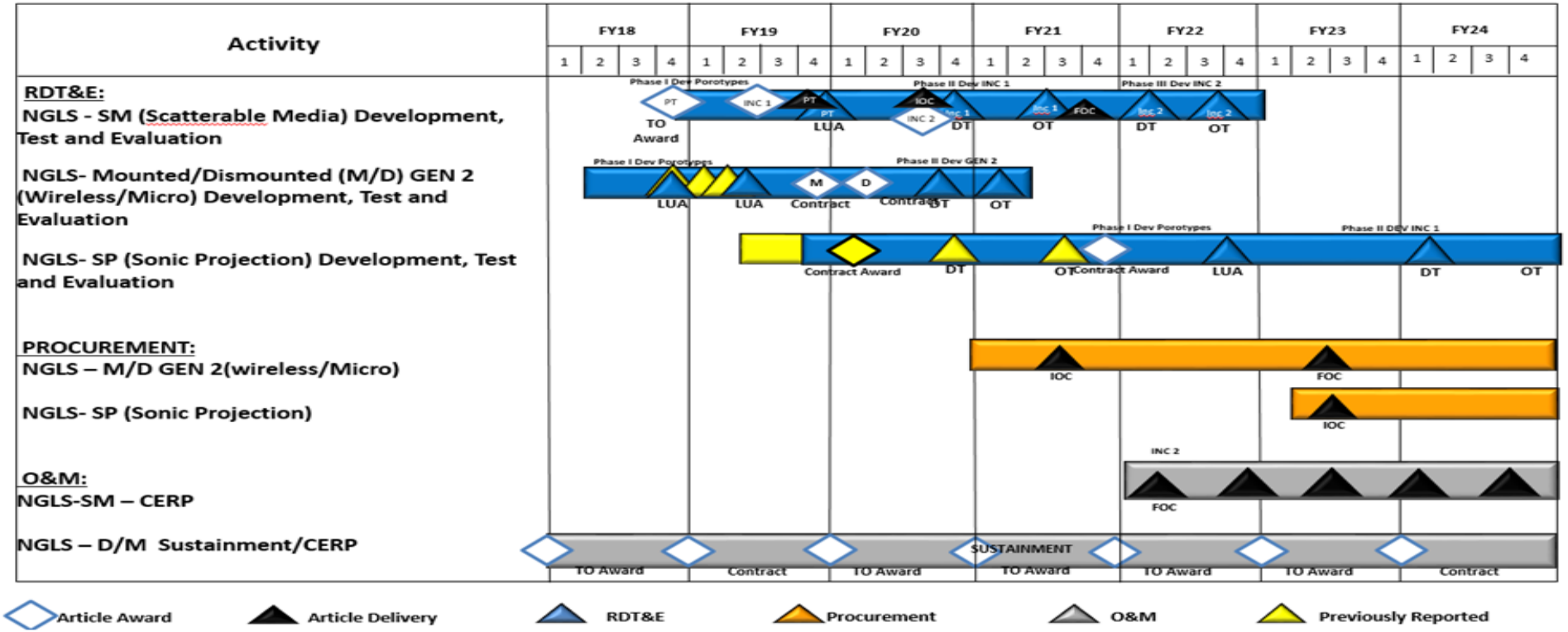

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** D476 / *Military Information Support Operations*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Multi-Mission Payload (MMP)				
Development	1	2018	3	2022
Test and Evaluation	2	2018	3	2022
Fly Away Broadcast Systems (FABS)				
Development	4	2018	4	2024
Next Generation Loudspeakers (NGLS)				
Scatterable Media Development, Test, and Evaluation	4	2018	4	2022
Mounted/Dismounted GEN 2 Development, Test, and Evaluation	2	2018	4	2021
Sonic Projection Development, Test, and Evaluation	4	2019	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / *Warrior Systems*	Project (Number/Name) S375 / *Weapons Systems*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S375: *Weapons Systems*	3.404	1.425	1.198	1.625	-	1.625	1.604	1.529	1.561	1.597	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development and testing of specialized, common caliber, individual, sniper, machine gun, pistol, crew served weapons systems and accessories that enable SOF to accurately engage enemy personnel and material in all SOF environments at ranges up to 1500 meters. Weapons include common caliber modular assault rifles to engage out to 600 meters, Sniper Support Rifles to engage out to 800 meters, sniper rifles to engage out to 1500 meters, shoulder fired Grenade Launchers, vehicle and man-portable high velocity grenade launchers, pistols, machine guns to engage out to 1000 meters, multi-barreled mini-guns which can be mounted on boats, vehicles, aircraft, and ground mounted to engage out to 3,500 meters.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Weapons	1.425	1.198	1.625	-	1.625
Description: SOF weapons are developed to enable the operator to tailor the configuration of the weapon to the assigned mission and operational environment, enhancing the overall effectiveness of the weapons, which enables mission accomplishment and operator survivability. ***FY 2019 Plans:*** Continue development of enhanced capabilities to improve performance of individual sniper, rifle, and machine gun weapons. ***FY 2020 Base Plans:*** Continues development of enhanced capabilities to improve performance of individual sniper, rifle, and machine gun weapons. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.427M for testing .338 machine gun.					
Accomplishments/Planned Programs Subtotals	1.425	1.198	1.625	-	1.625

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0204WARRIOR: *Warrior Systems <$5M*	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

Evolutionary acquisition, leveraging emerging technology and mid-tier acquisition authorities. An evolutionary approach delivers capability in increments, recognizing, up front, the need for future capability improvements. Full and open competition with firm-fixed price contracts and other transaction authorities (OTAs).

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Weapon Test & Evaluation	MIPR	Various : Various	3.404	1.425	Jan 2018	1.198	Jan 2019	1.625	Jan 2020	-		1.625	Continuing	Continuing	-
		Subtotal	3.404	1.425		1.198		1.625		-		1.625	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.404	1.425		1.198		1.625		-		1.625	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S375 / *Weapons Systems*

Weapon Systems Schedule

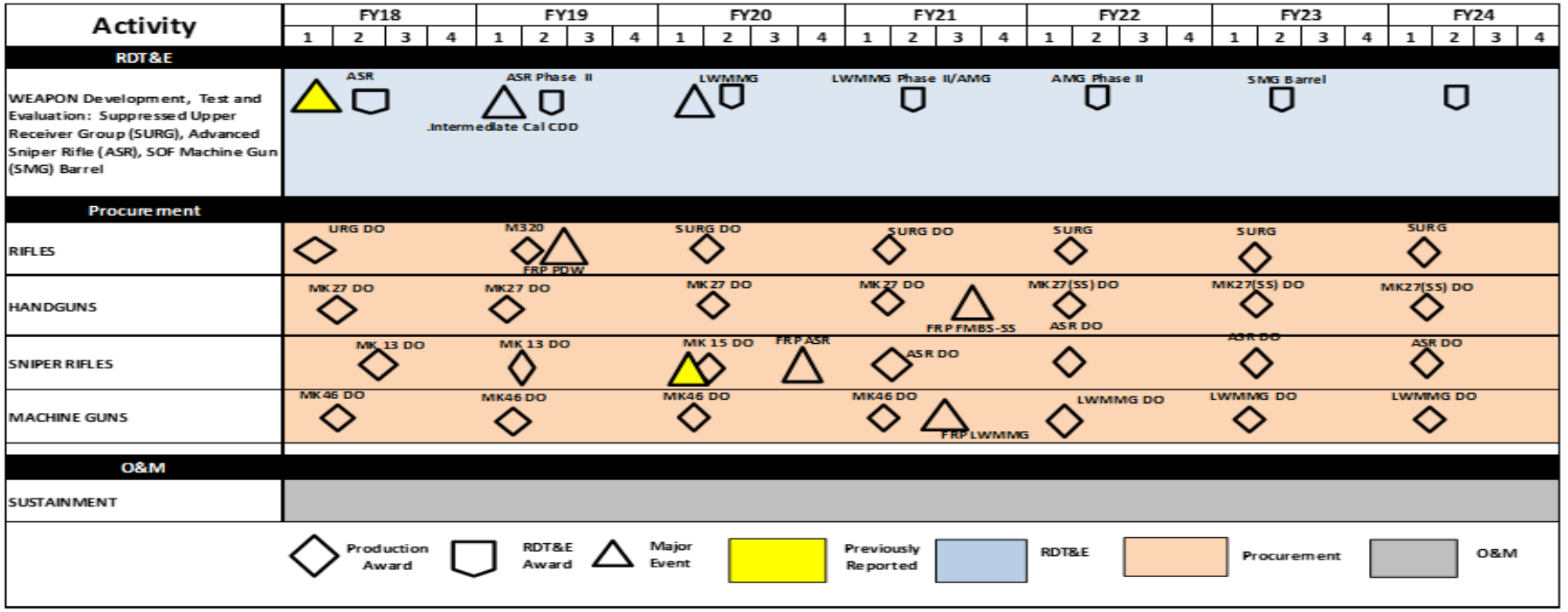

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Weapon Systems				
WEAPON Development, Test and Evaluation: Suppressed Upper Receiver Group (SURG), Advanced Snipe Rifle (ASR), SOF Machine Gun (SMG) Barrel	2	2018	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / *Warrior Systems*	Project (Number/Name) S385 / *Soldier Protection and Survival Systems*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S385: *Soldier Protection and Survival Systems*	17.555	2.078	10.501	8.918	6.000	14.918	10.874	10.840	10.935	11.049	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides development, rapid prototyping, testing, and evaluation of signature reducing materials and technology and specialized equipment to meet the unique operator protection and survival requirements for Special Operations Forces (SOF), which include: Army Rangers; Army Special Forces; Navy Sea, Air, Land (SEAL) teams; Navy Special Boat Units; Air Force Operators; and Marine Raiders. Specialized equipment improves survivability protection from the environment by providing the operator with Counter Radio Controlled Improvised Explosive Device (RC-IED) systems, Counter Unmanned Aircraft System (CUAS) systems (aerial, ground and maritime) to mitigate and defeat the emerging and rapidly evolving unmanned system threats, hearing protection and clothing systems, load bearing equipment, and personnel safety equipment to improve the mobility of SOF, while conducting varied missions. These missions are generally conducted in harsh and hostile environments, for unspecified periods and in locations requiring small unit autonomy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SOF Personal Equipment Advanced Requirements (SPEAR)	0.475	0.880	1.259	-	1.259
Description: The SPEAR program provides for the research, development, testing and evaluation of a variety of individual and survival equipment to include: ballistic and environmental protective combat uniforms, load carriage systems, communications headsets, and visual augmentation system mounts. ***FY 2019 Plans:*** Continue research and development of land communications material solutions and environmental protective combat uniforms. Continue materials testing and incorporation into commodity lines. Continues wireless headset evaluations. Continue interoperability of headsets with radios and integrated communication systems. ***FY 2020 Base Plans:*** Continues research and development of land communications material solutions and environmental protective combat uniforms. Continues materials testing and incorporation into commodity lines. Continues wireless headset evaluations. Continues interoperability of headsets with radios and integrated communication systems. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.379M provides for aviation specific equipment and integrated wireless communications headsets.					
Title: Tactical Combat Casualty Care (TCCC)	0.192	0.178	0.240	-	0.240

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Description: TCCC provides lifesaving medical devices, ancillary equipment and Casualty Evacuation (CASEVAC) sets for SOF. The CASEVAC procures a suite of Food and Drug Administration approved medical items including, but not limited, to intraosseous infusion devices, patient monitoring and assessment devices, emergency airway kits, as well as devices that provide SOF the capability to support extraction, mobility, transportation, and sustainment of casualties in forward areas. This program fields tactical medical and CASEVAC capabilities with the intention to transition capabilities developed under the National Mission Force's Tactical Medical Programs. This capability provides significant ability to lessen battlefield losses by providing timely, critical lifesaving and evacuation capabilities to the forward-deployed SOF operators. ***FY 2019 Plans:*** Continue test support to include program management, market surveys, rapid prototyping test article acquisition, test and evaluation and systems engineering in direct support of the CASEVAC program. Continue the evaluation of enhanced medical monitoring systems for incorporation into the CASEVAC program. Complete development and testing of water resistant solutions for maritime operations of components within the CASEVAC set. ***FY 2020 Base Plans:*** Continues test support to include program management, market surveys, rapid prototyping, test article acquisition, test and evaluation and systems engineering in direct support of the CASEVAC program. Continues the evaluation of enhanced medical monitoring systems capable of enabling telemedicine/telementoring for incorporation into the CASEVAC program. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.062 million due to CASEVAC Prime vendor contract re-compete effort and the anticipated required network testing to enable telemedicine capabilities on enhanced medical monitoring systems.					
Title: Counter Radio Controlled-Improvised Explosive Device (RC-IED) ***Description:*** The Counter RC-IED program provides SOF with the ability to counter current and future RC-IED threats used by terrorist networks. ***FY 2019 Plans:*** Continue test support to the Counter RC-IED program. Continue system engineering, test and evaluation, test article acquisition, and market research of the RC-IED programs. Maintain range effectiveness and currency, ensuring the ability to accurately test against current and emerging threat systems. Continue development	1.000	1.548	1.731	-	1.731

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
and testing of Electronic Counter Measures (ECM) systems capability to include advanced software technique countermeasures and loadsets for mounted and dismounted systems. Continue implementation of Modi software refactoring, improving stability and future technology integration. ***FY 2020 Base Plans:*** Continues test support to the Counter RC-IED program. Continues system engineering, test and evaluation, test article acquisition, and market research of the RC-IED programs. Maintains range effectiveness and currency, ensuring the ability to accurately test against current and emerging threat systems. Continues development and testing of ECM systems capability to include advanced software technique countermeasures and loadsets for mounted and dismounted systems. Continues implementation of Modi software refactoring, improving stability and future technology integration. Begin Next generation ECM study. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.183 to begin Next generation ECM study.					
Title: Counter Unmanned Aerial System (CUAS) ***Description:*** The objective of this program is to research, develop, integrate, generate rapid prototypes, test and evaluate cutting edge Counter-Small Unmanned (Aerial, Ground, Maritime) Systems. This effort will support a CUAS Sensor Integration Module (SIM) Family of Systems (FoS) that integrates various detection sensor modalities (passive sensors, Radio frequency (RF) detection, acoustic, Light Detection and Ranging (LiDAR), radar, day/night Short-Wave Infrared, Mid-Wave Infrared, Long-Wave Infrared (SWIR/MWIR/LWIR) imaging, etc.) along with defeat systems into a SIM. The results of this effort will enhance the soldiers ability to detect, track, identify and defeat specific stand-off weapon threats, to acquire objects of military significance before the soldier is detected and to target threat systems accurately for engagement by the soldiers. This system integration will take the man-out-of-the-loop for detection of threat systems and include man-in-the-loop for defeat capabilities. To accomplish this objective, the project will be broken down into the following: (1) technology and concept evaluation, (2) prototype development, and (3) prototype evaluation and assessment. This program received overseas contingency operations (OCO) funding in FY2019. ***FY 2019 Plans:*** FY 2019 dollars will support all three Phases (1) of this project. The SIM effort will be develop under the guidance and authorities of Middle Tier Acquisition. Complete phase 1 for CUAS technology and concept	0.411	4.731	4.000	6.000	10.000

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
evaluation. Began phase 2 for hardware/prototype development and systems engineering of CUAS FoS SIM layered multi-sensor interface technologies. Began phase 3 for systems prototype test and evaluation. ***FY 2020 Base Plans:*** Completes phase 2 and 3 of CUAS FoS SIM layered multi-sensor interface technologies. Begins 4G/5G Long Term Evaluation (LTE) Datalinks/Autonomous Flight Development and countering high accuracy Global Positioning System (GPS) and Inertial Measurement Unit (IMU) optics. ***FY 2020 OCO Plans:*** CUAS FoS-SIM device for further developmental test and evaluation where the developed CUAS FoS-SIM prototype will undergo several levels of performance testing and interoperability assessments. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $10 million is due to the creation of the SOF CUAS program as a result of adding base funding and OCO funding to effectively meet the current and emerging enemy threats posed to SOF operations by small unmanned systems in harsh and denied environment.					
Title: Personal Signature Management (PSM) ***Description:*** This project provides for development, rapid prototyping, test, and evaluation of signature reducing materials and technology, in order to reduce the probability of detection by battlefield threat sensors. ***FY 2019 Plans:*** Provide research, development, rapid prototyping, test and evaluation of next generation signature reducing solutions. Provide for program management, market research, test item acquisition and test and evaluation, in support of PSM efforts for both land and maritime operations. ***FY 2020 Base Plans:*** Continues research, development, rapid prototyping, test and evaluation of next generation signature reducing solutions. Provides for program management, market research, test item acquisition and test and evaluation, in support of PSM efforts for both land and maritime operations. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.024 million is due to anticipated increased cost of threat sensor exploitation efforts.	-	1.664	1.688	-	1.688
Accomplishments/Planned Programs Subtotals	2.078	9.001	8.918	6.000	14.918

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
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	FY 2018	FY 2019
Congressional Add: Rotary Wing Aviation Helmet	-	1.500
FY 2019 Plans: Research and development of rotary wing aviation helmet.		
Congressional Adds Subtotals	-	1.500

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0204WARRIOR: *Warrior Systems<$5M*	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing

Remarks

D. Acquisition Strategy

Counter Unmanned Aerial System (CUAS): SOF CUAS acquisition strategy is predicated on a layered approach of developing and integrating various advancing detection sensor modalities paired with kinetic and non-kinetic defeat capabilities to include exploitation and digital manipulation technologies. SOF Operators require CUAS capability in hand held, man-portable, mounted and fixed site/expeditionary form factors. SOF CUAS collaborates with the Joint Services, Academia and other government agencies to maintain interoperability and cost effectiveness. As SOF CUAS capabilities are developed for specific SOF mission profiles, centralized life cycle sustainment will be required in support of the SOF Components and Theater Special Operations Commands (TSOC). SOF CUAS will utilize Special Operations Forces Support Activity (SOFSA) for warehousing and sustainment.

Counter Radio Controlled - Improvised Explosive Device (RC-IED): USSOCOM collaborates with the DoD Joint CREW manager and other government agencies in order to maintain Joint Force compatibility and improve program affordability. All next generation Electronic Countermeasures (ECM) development designed as National to Theater ("N-to-T") transition programs. Centralized life cycle sustainment of SOF CREW inventory supports TSOC operational demand as theater provided equipment (TPE).

Personal Signature Management (PSM): Signature reducing technologies will be embedded into SOF clothing and equipment via modified commercial-off-the-shelf variants. Contracts in support of fielding/sustainment of PSM clothing and equipment will be a combination of sole source firm fixed price 5-year indefinite delivery indefinite quantity contracts, Source America mandatory sole sources, small business set asides and prime vendor style multiple award contracts. PSM will utilize SOFSA for warehousing and sustainment.

Tactical Combat Casualty Care (TCCC): Operator & Medic Kits - Program managed by Program Manager-Special Operations Forces Survival, Support, and Equipment Systems (PM-SOF SSES) using US Army Medical Materiel Agency prime vendor contracts for equipment purchases and the SOFSA for warehousing and sustainment. CASEVAC Set - Program managed by PM-SOF SSES and utilizes and Indefinite Delivery Indefinite Quantity Commercial-Off-The-Shelf prime integrator contract.

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SPEAR: Contracts in support of SPEAR are a combination of firm fixed price five year indefinite delivery indefinite quantity with single vendor awards, Source America mandatory sole sources, small business set asides and prime vendor style multiple awards.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOF Personal Equipment Advanced Requirements (SPEAR) - Protective Combat Uniform (PCU)	Various	PM-SSES : Natick, MA	0.331	0.116	Jan 2018	0.200	Jan 2019	0.295	Jan 2020	-		0.295	Continuing	Continuing	-
SPEAR - Modular Integrated Communications Helmet/Land Maritime Communication System	Various	PM-SSES : Natick, MA	1.095	0.100	Jan 2018	0.150	Feb 2019	0.205	Jan 2020	-		0.205	Continuing	Continuing	-
SPEAR Modular Glove System (MGS)	Various	PM-SSES : Natick, MA	0.040	-		0.010	Jan 2019	0.025	Jan 2020	-		0.025	Continuing	Continuing	-
SPEAR - Load Carriage System (LCS) and Backpacks	Various	PM-SSES : Natick, MA	0.045	0.010	Feb 2018	0.050	Mar 2019	0.085	Mar 2020	-		0.085	Continuing	Continuing	-
Counter Unmanned Aerial System (C-UAS) Overseas Contingency Operations (OCO)	C/Various	Various : Various	-	-		3.000	Feb 2019	-		-		-	0.000	3.000	-
C-UAS 4G/5G LTE Datalinks/Autonomous Flight (Mission Planning) Development OCO	C/Various	Various : Various	-	-		-		0.000		6.000	Nov 2019	6.000	Continuing	Continuing	-
C-UAS High Accuracy Global Positioning System (GPS) and Inertial Measurement Unit (IMU) Development	C/Various	Various : Various	-	-		-		4.000	Mar 2020	-		4.000	Continuing	Continuing	-
C-UAS Protype Development	C/Various	Night Vision Labs : Ft. Belvoir, VA	-	-		1.000	Feb 2019	-		-		-	0.000	1.000	-
Rotary Wing Aviation Helmet Congressional Add	C/TBD	TBD : TBD	-	-		1.500	Mar 2019	-		-		-	Continuing	Continuing	-
		Subtotal	1.511	0.226		5.910		4.610		6.000		10.610	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SPEAR - PCU testing/P3I	Various	PM-SSES : Natick, MA	0.256	0.100	Mar 2018	0.200	Feb 2019	0.245	Mar 2020	-		0.245	Continuing	Continuing	-
SPEAR-MGS Test and Evaluation	Various	PM-SSES : Natick, MA	0.091	-		0.010	Jan 2019	0.045	Jan 2020	-		0.045	Continuing	Continuing	-
SPEAR - Maritime Comms Test and Evaluation	Various	PM-SSES : Natick, MA	1.568	0.100	Jan 2018	0.210	Jan 2019	0.265	Jan 2020	-		0.265	Continuing	Continuing	-
SPEAR - LCS/Body Armor Vest/Backpack Material and Prototype Test and Evaluation	Various	PM-SSES : Natick, MA	0.067	0.049	Feb 2018	0.050	Jan 2019	0.094	Feb 2020	-		0.094	Continuing	Continuing	-
Tactical Combat Casualty Care CASEVAC Sets Development, Test and Evaluation	Various	PM-SSES : Natick, MA	1.375	0.192	Feb 2018	0.178	Feb 2019	0.240	Feb 2020	-		0.240	Continuing	Continuing	-
Counter Radio Controlled - Improvised Explosive Device Test and Evaluation Support	Various	Various : Various	12.127	1.000	Jun 2018	1.548	Jan 2019	1.731	Jan 2020	-		1.731	Continuing	Continuing	-
C-UAS Tech. and Concept Evaluation	C/Various	Night Vision Labs : Ft. Belvoir, VA	-	0.411	Aug 2018	0.231	Feb 2019	-		-		-	Continuing	Continuing	-
C-UAS Test and Evaluation Support	C/Various	Night Vision Labs : Ft. Belvoir, VA	-	-		0.500	Aug 2019	-		-		-	Continuing	Continuing	-
Personal Signature Management (PSM) Test and Evaluation	Various	Various : Various	-	-		1.664	Jan 2019	1.688	Jan 2020	-		1.688	Continuing	Continuing	-
Prior Year	MIPR	Various : Various	0.160	-		-		-		-		-	0.000	0.160	-
Prior Year (OCO)	Various	Various : Various	0.400	-		-		-		-		-	0.000	0.400	-
		Subtotal	16.044	1.852		4.591		4.308		-		4.308	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	17.555	2.078		10.501		8.918		6.000		14.918	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
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	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
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SPEAR Schedule

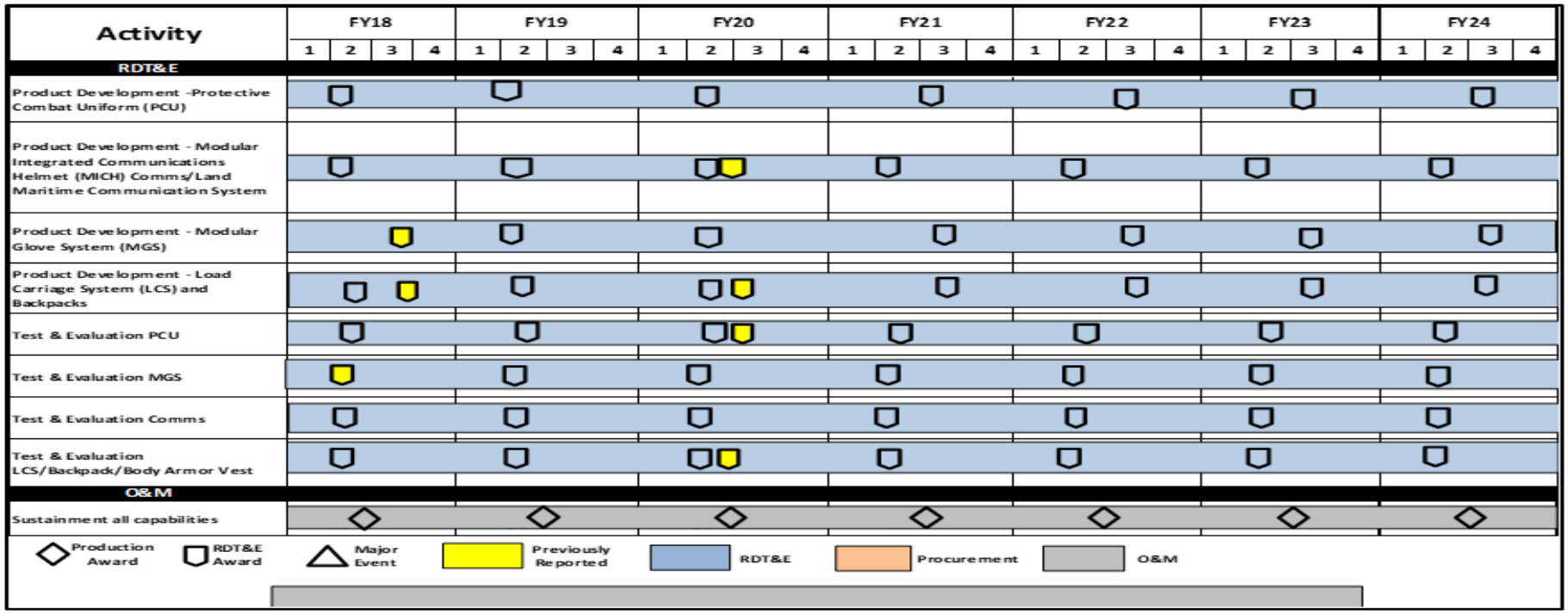

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
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TCCC Schedule

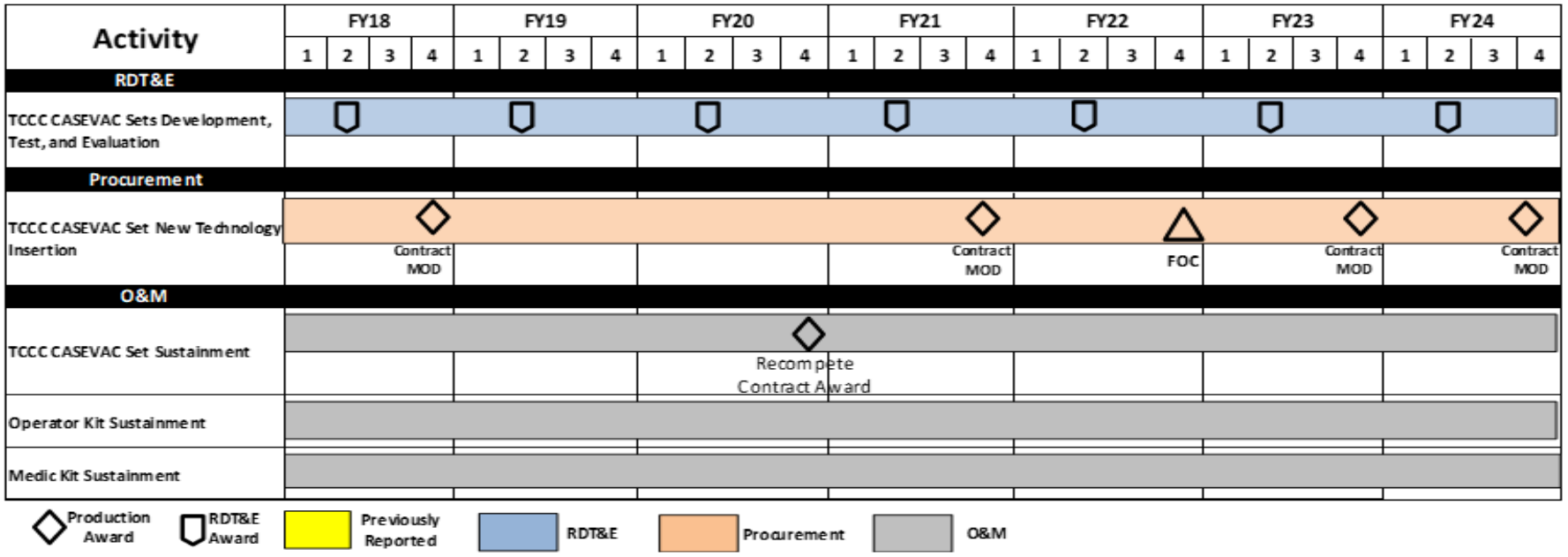

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
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Counter RC-IED Schedule

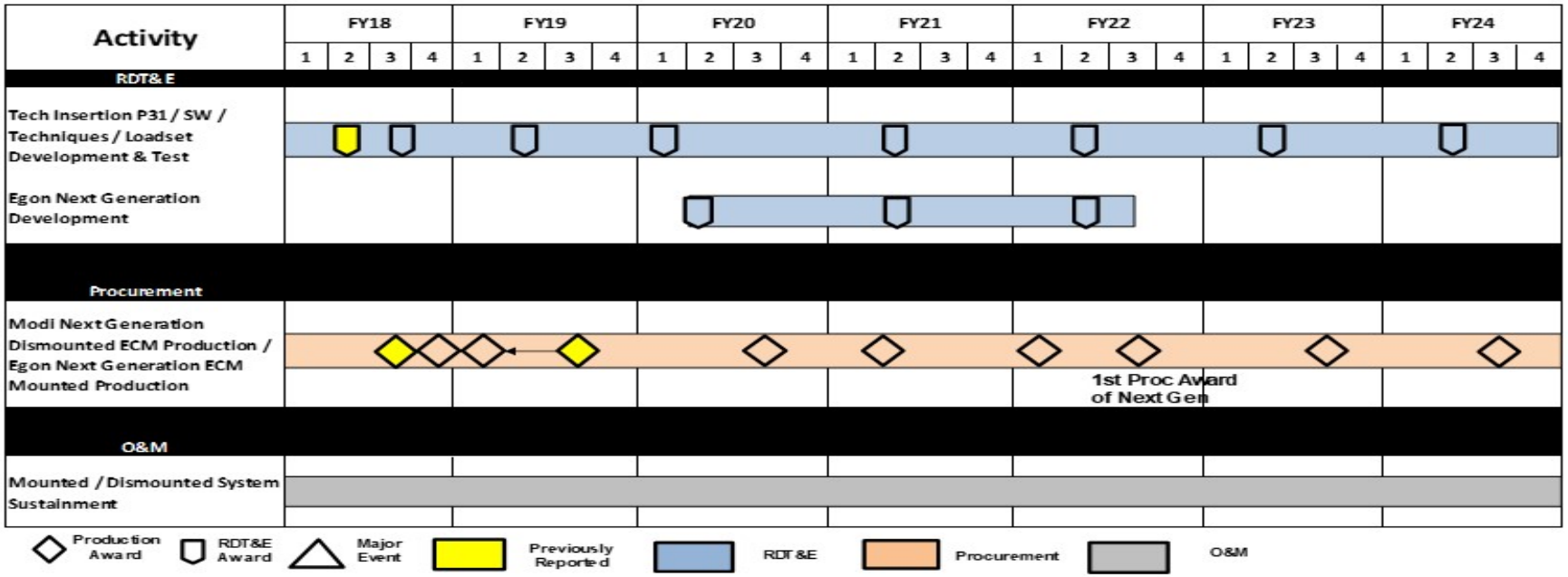

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
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CUAS Schedule

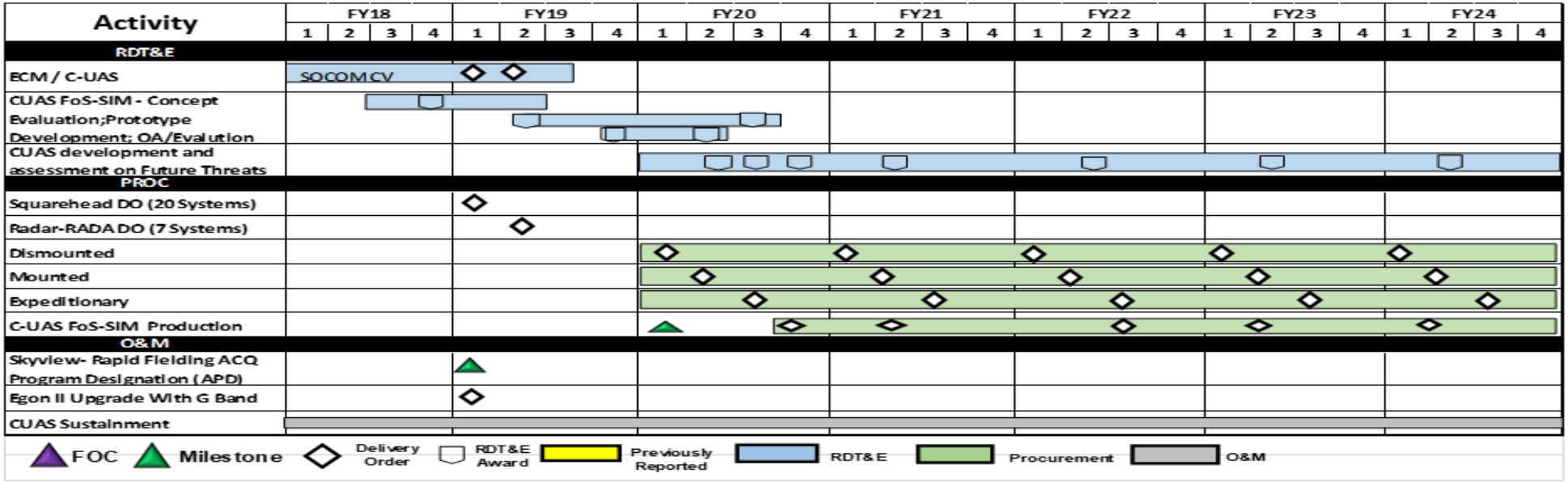

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
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Personal Signature Management Schedule

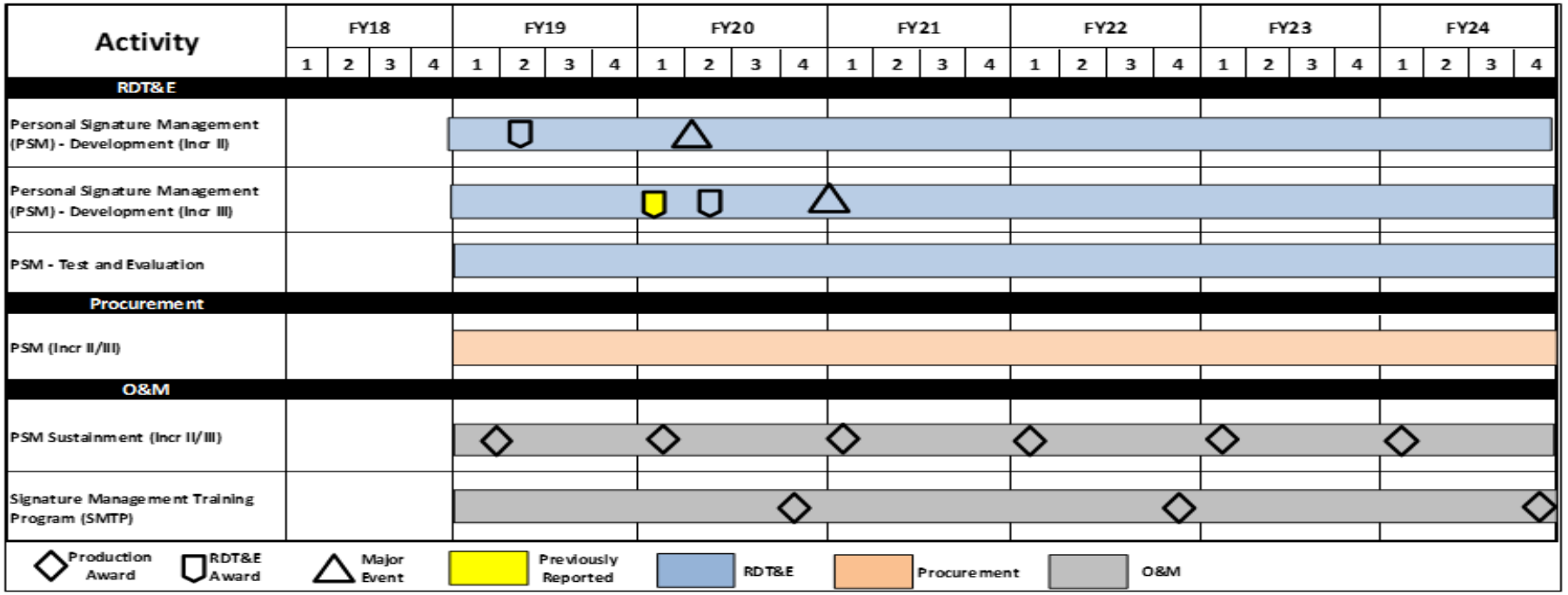

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S385 / *Soldier Protection and Survival Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Soldier Protection and Survival Systems				
Protective Combat Uniform (PCU) Product Development	2	2018	4	2024
Modular Integrated Communications Helmet (MICH) Comms/Land Maritime Communication System Product Development	2	2018	4	2024
Modular Glove System (MGS) Product Development	2	2019	4	2024
Load Carriage System (LCS) and Backpacks Product Development	2	2018	4	2024
PCU Test & Evaluation	2	2018	4	2024
MGS Test & Evaluation	2	2019	4	2024
Comms Test & Evaluation	2	2018	4	2024
LCS/Backpack/Body Armor Vest Test & Evaluation	2	2018	4	2024
Tactical Combat Casuality Care				
TCCC CASEVAC Sets Development, Test & Evaluation	2	2018	4	2024
Counter Radio Controlled-Improvised Explosive Device				
Test & Evaluation Support	3	2018	4	2024
Next Generation ECM development	2	2020	3	2022
Counter Unmanned Aerial System (C-UAS)				
C-UAS Family of Systems (FoS) SIM - Phase 1 (Technology and Concept Evaluation)	3	2018	2	2019
CUAS FoS-SIM - Phase 2 (Prototype Development)	2	2019	3	2020
CUAS FoS-SIM - Phase 3 (Prototype Evaluation and Assessment)	4	2018	3	2020
Test Range Support, Developmental Testing	2	2019	4	2024
Personnel Signature Management (PSM)				
PSM Development (Incr II)	1	2019	4	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S385 / *Soldier Protection and Survival Systems*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
PSM Development (Incr III)	1	2019	4	2024
PSM Test & Evaluation	1	2019	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / *Warrior Systems*	Project (Number/Name) S385A / *Body Armor and Associated Equipment*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S385A: *Body Armor and Associated Equipment*	6.330	1.242	1.048	1.752	-	1.752	1.738	1.694	1.729	1.770	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides specialized equipment to meet the unique operator protection and survival requirements of SOF, to include: Army Rangers; Army Special Forces; Navy Sea, Air, Land (SEAL) teams; Navy Special Boat Units; Air Force Operators; and Marine Raiders. Specialized ballistic equipment improves survivability impacting the mobility of SOF while conducting varied missions. These missions are generally conducted in harsh environments, for unspecified periods and in locations requiring small unit autonomy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SOF Personal Equipment Advanced Requirement (SPEAR)-Ballistic Protection	1.242	1.048	1.752	-	1.752
Description: This project enhances the SPEAR program by supporting body armor helmets, and eye protection. It also provides for the research, development, and testing of a variety of body armor and personal protective equipment.					
FY 2019 Plans: Continue foreign ammunition testing and threat validation to assess effectiveness of currently fielded personal protective equipment. Continue development and testing of lightweight body armor and helmets to upgrade systems that have been fielded. Continue evaluation of transparent armor products which include variable light transmission and laser lenses to upgrade systems that have been fielded. Continue development and testing of technologies to upgrade the maritime crewman helmet.					
FY 2020 Base Plans: Continues foreign ammunition testing and threat validation to assess effectiveness of currently fielded personal protective equipment. Continues development and testing of lightweight body armor and helmets to upgrade systems that have been fielded. Continues evaluation of transparent armor products which include variable light transmission and laser lenses to upgrade systems that have been fielded. Continues development and testing of technologies to upgrade the maritime crewman helmet.					
FY 2019 to FY 2020 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S385A / *Body Armor and Associated Equipment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Increase of $0.704 million is for product improvements of helmets and body armor.					
Accomplishments/Planned Programs Subtotals	1.242	1.048	1.752	-	1.752

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0204WARRIOR: *Warrior Systems<$5M*	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing

Remarks

D. Acquisition Strategy

SPEAR ballistic protection equipment takes advantage of modified commercial-off-the-shelf or non-developmental items. As USSOCOM required tailored solutions for SOF Mission sets, SPEAR items leveraged from industry are often on cutting edge of technology with modifications specific for SOF missions and require substantial testing in SOF environments. Utilizes Special Operations Forces Support Activity (SOFSA) for warehousing and sustainment, Program Manager Special Operations Forces - Survival, Support, and Equipment Systems (PM-SOF SSES) has cradle to grave responsibility. Contracts in support of SPEAR are a combination of firm fixed price five year indefinite delivery indefinite quantity with single vendor awards, Source America mandatory sole sources, small business set asides and prime vendor style multiple award contracts.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S385A / *Body Armor and Associated Equipment*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOF Personal Equipment Advanced Requirement (SPEAR) - Body Armor	Various	PM-SSES : Natick, MA	2.025	0.480	Jan 2018	0.359	Apr 2019	0.395	Feb 2020	-		0.395	Continuing	Continuing	-
SPEAR - Lightweight Ballistic Helmets	Various	PM-SSES : Natick, MA	1.497	0.220	Jan 2018	0.126	Apr 2019	0.385	Jan 2020	-		0.385	Continuing	Continuing	-
SPEAR - Eye Protection	Various	PM-SSES : Natick, MA	0.186	0.050	Mar 2018	0.050	Apr 2019	0.107	Mar 2020	-		0.107	Continuing	Continuing	-
		Subtotal	3.708	0.750		0.535		0.887		-		0.887	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SPEAR - Body Armor	Various	PM-SSES : Natick, MA	1.414	0.312	Feb 2018	0.322	Apr 2019	0.385	Apr 2020	-		0.385	Continuing	Continuing	-
SPEAR - Lightweight Ballistic Helmet	Various	PM-SSES : Natick, MA	1.081	0.150	Feb 2018	0.153	Apr 2019	0.385	Apr 2020	-		0.385	Continuing	Continuing	-
SPEAR - Transparent Armor	Various	PM-SSES : Natick, MA	0.127	0.030	Mar 2018	0.038	Apr 2019	0.095	Mar 2020	-		0.095	Continuing	Continuing	-
		Subtotal	2.622	0.492		0.513		0.865		-		0.865	Continuing	Continuing	N/A

	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.330	1.242		1.048		1.752		-		1.752	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S385A / *Body Armor and Associated Equipment*

SPEAR – Body Armor Schedule

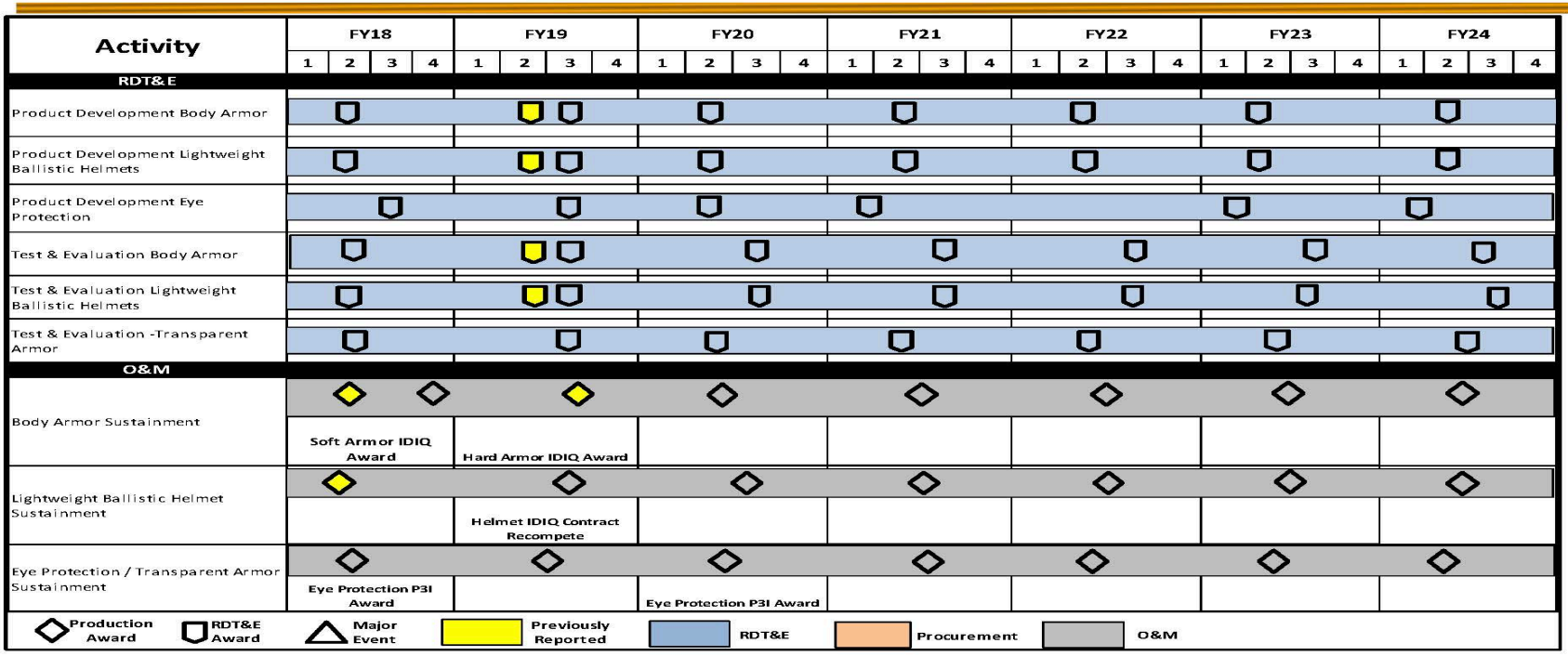

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S385A / *Body Armor and Associated Equipment*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Body Armor and Associated Equipment				
Body Armor Product Development	2	2018	4	2024
Lightweight Ballistic Helmets Product Development	2	2018	4	2024
Eye Protection Product Development	2	2018	4	2024
Body Armor Test & Evaluation	2	2018	4	2024
Lightweight Ballistic Helmets Test & Evaluation	2	2018	4	2024
Transparent Armor Test & Evaluation	2	2018	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / *Warrior Systems*	Project (Number/Name) S395 / *Visual Augmentation, Lasers and Sensor Systems*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S395: *Visual Augmentation, Lasers and Sensor Systems*	11.383	0.940	1.257	3.212	-	3.212	2.171	2.097	2.132	2.174	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for development, testing and integration of specialized visual augmentation, binocular and monocular night vision devices, laser markers, laser designators, geo-location systems, weapon optics, weapon aiming lasers, sensor systems, visible lights, infrared imagers, clandestine pointers, simulators and accessories to meet the unique requirements of SOF. These projects ensure SOF hyper-enabled operators will remain technologically superior to enemy threats and ensure mission success.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Visual Augmentation Systems	0.940	1.257	3.212	-	3.212
Description: Sensor technologies being developed include image intensification thermal imaging, short wave infrared, multi-spectral, fusion, and other sensor types. Developments will decrease weight, increase range, increase situational awareness, provide data, image processing, image filtering, determine wind speed, observe bullet trace, and sensor fusion to be able to detect, identify, classify and engage targets at greater ranges. Some efforts may be tied to Hyper-Enabled Operator (HEO). ***FY 2019 Plans:*** Continue development and testing of visual augmentation and laser devices to improve situational awareness, sharing of data/images and target acquisition. ***FY 2020 Base Plans:*** Continues development and testing of visual augmentation, laser devices, and begin development and testing of simulators to improve situational awareness, sharing of data/images, target acquisition, and training. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $1.955 million for simulator development.					
Accomplishments/Planned Programs Subtotals	0.940	1.257	3.212	-	3.212

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S395 / *Visual Augmentation, Lasers and Sensor Systems*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0204WARRIOR: *Warrior Systems<$5M*	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing

Remarks

D. Acquisition Strategy

Evolutionary acquisition, leveraging emerging technologies and mid-tier acquisition approaches. An evolutionary approach delivers capability in increments, recognizing, up front, the need for future capability improvements. Full and open competition; Contracts are a combination of five-year Firm Fixed Price Indefinite Delivery Indefinite Quantity, small business set asides at several locations, and other transaction authorities (OTAs); primarily via Naval Surface Warfare Center, Crane Contracting office, USSOCOM Contracting Office and other contracting offices.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S395 / *Visual Augmentation, Lasers and Sensor Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Visual Augmentation Systems (VAS) Product Development (Laser and Optic)	C/CPFF	USSOCOM : Tampa, FL	8.516	0.645	Jun 2018	1.257	Jan 2019	1.507	Apr 2020	-		1.507	Continuing	Continuing	-
Visual Augmentation Systems (VAS) Product Development (Simulator)	C/CPFF	USSOCOM : Tampa, FL	-	-		-		1.493	Apr 2020	-		1.493	Continuing	Continuing	-
Prior Year Overseas Contingency Operations (OCO)	C/CPFF	USSOCOM : Tampa, FL	2.667	-		-		-		-		-	0.000	2.667	-
		Subtotal	11.183	0.645		1.257		3.000		-		3.000	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
VAS Test and Evaluation	C/CPFF	USSOCOM : Tampa, FL	0.200	0.295	Jun 2018	-		-		-		-	Continuing	Continuing	-
VAS Optic Test and Evaluation	C/CPFF	USSOCOM : Tampa FL	-	-		-		0.106	Apr 2020	-		0.106	Continuing	Continuing	-
VAS Laser Test and Evaluation	C/CPFF	USSOCOM : Tampa FL	-	-		-		0.106	Apr 2020	-		0.106	Continuing	Continuing	-
		Subtotal	0.200	0.295		-		0.212		-		0.212	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	11.383	0.940		1.257		3.212		-		3.212	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S395 / *Visual Augmentation, Lasers and Sensor Systems*

Visual Augmentation Systems Laser Schedule

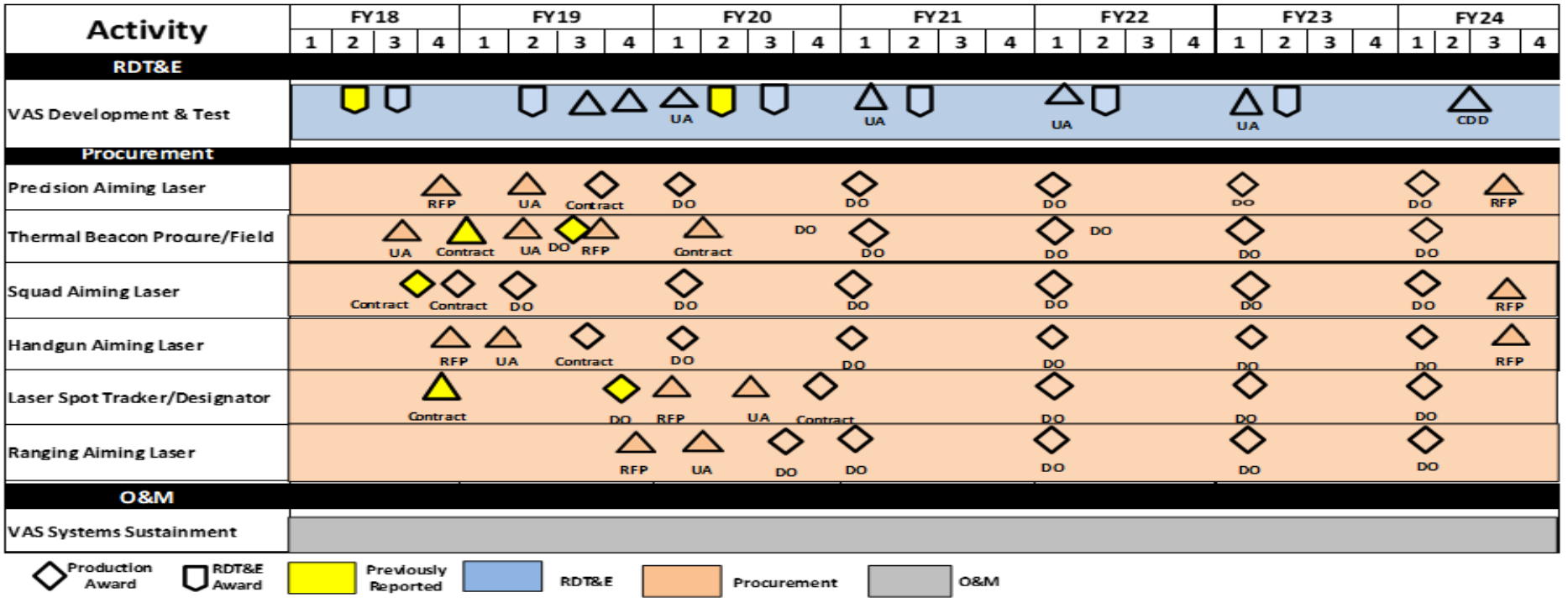

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S395 / *Visual Augmentation, Lasers and Sensor Systems*

Visual Augmentation Systems Optic Schedule

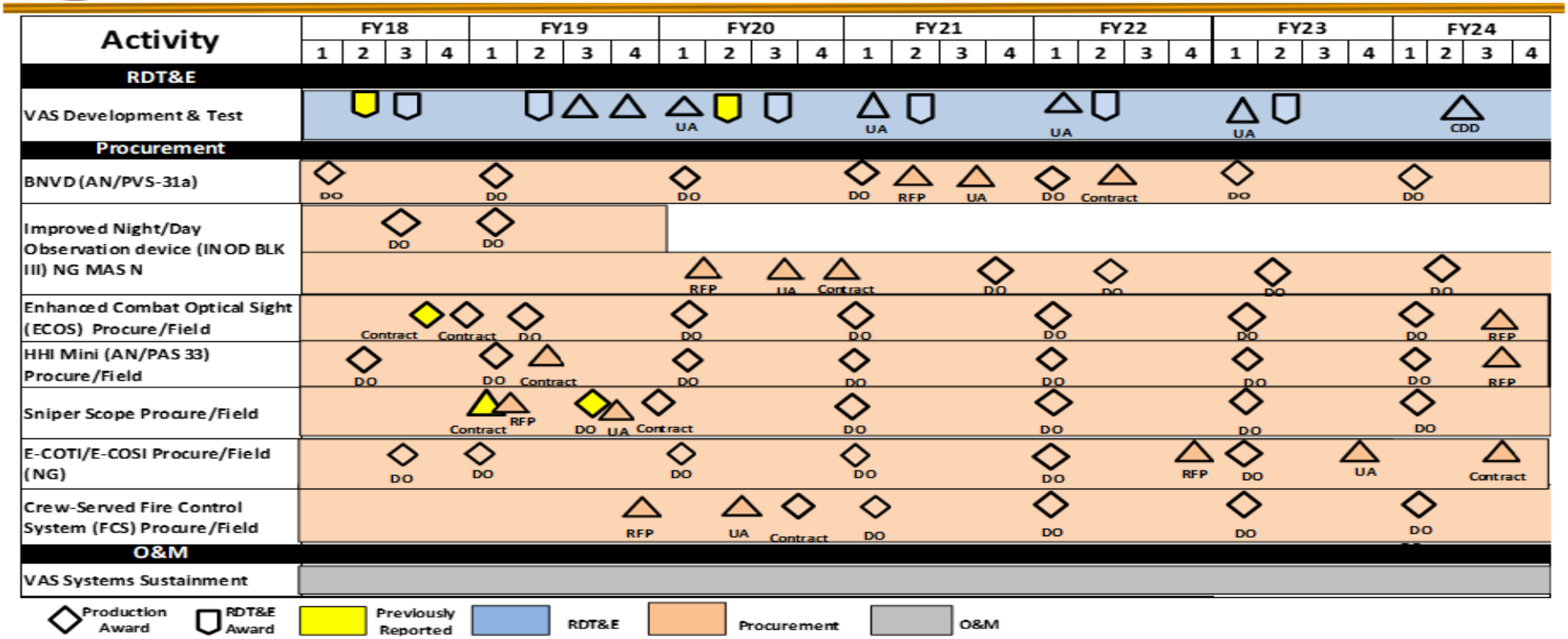

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S395 / *Visual Augmentation, Lasers and Sensor Systems*

Visual Augmentation Systems Simulator Schedule

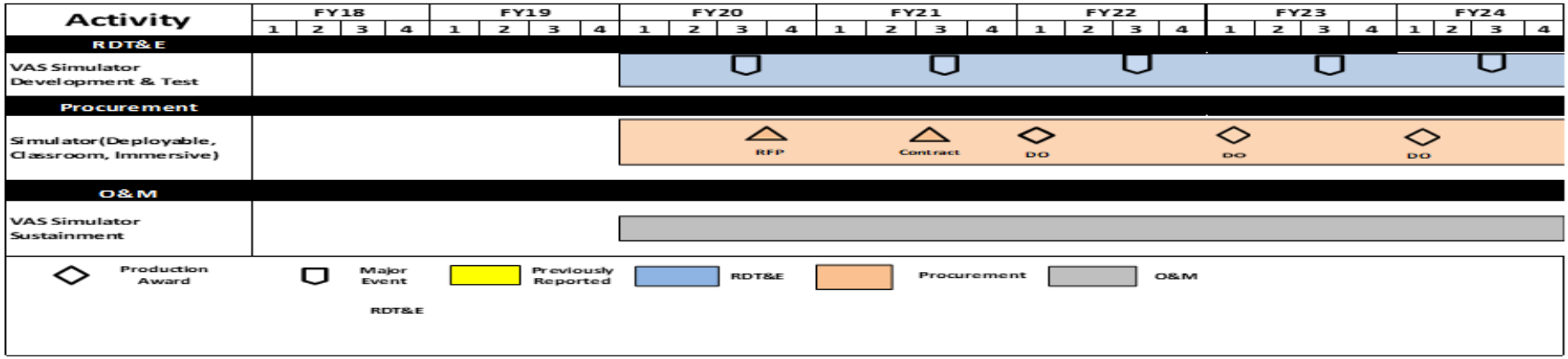

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S395 / *Visual Augmentation, Lasers and Sensor Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Visual Augmentation Systems				
VAS Optic Development and Test	3	2018	4	2024
VAS Laser Development and Test	3	2018	4	2024
VAS Simulator Development and Test	3	2020	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / *Warrior Systems*	Project (Number/Name) S700 / *Communications Equipment and Electronics Systems*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S700: *Communications Equipment and Electronics Systems*	21.643	9.294	13.966	18.519	-	18.519	21.852	17.040	16.487	16.862	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for communication systems to meet emergent requirements to support Special Operations Forces (SOF). Communications Equipment and Electronics Systems is a continuing effort to develop smaller, lighter, more efficient and more robust SOF Command, Control, Communications, and Computer (C4) capabilities.

USSOCOM's C4 systems comprise an integrated network of systems providing positive command and control and the timely exchange of information to all organizational echelons. The C4 systems that support this new architecture employ the latest standards and technology by transitioning from separate systems to full integration within the Global Information Grid (GIG). The GIG is a multitude of existing and projected national assets that allows SOF elements to operate with any force combination in multiple environments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Satellite Deployable Node (SDN)	4.785	9.527	10.487	-	10.487
Description: SDN is a family of deployable, super high frequency, multi-band, Satellite Communications (SATCOM) systems providing the transport path for high-capacity, voice, data, Video Teleconferencing (VTC), and Full Motion Video at all levels of classification. It consists of SDN subprograms, transport for intelligence variants, technology insertions and capital equipment replacement.					
FY 2019 Plans: Continue assessments, tests and evaluations for wide-band Communications On The Move (COTM) maritime, ground mobile, and airborne technologies. Continues assessments of reduction of size, weight and power (SWAP). Continue Evolutionary Technology Insertion (ETI) integration. Continue evaluation of new SATCOM constellations and terminals. Evaluate resiliency of systems in a degraded communication environment. Evaluate and test SDN wireless network capabilities. Evaluate and test mobile technologies.					
FY 2020 Base Plans: Continues assessments, tests and evaluations for wide-band COTM maritime, ground mobile and airborne technologies. Continues assessments of reduction of size, weight and power (SWAP). Continues ETI					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S700 / *Communications Equipment and Electronics Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
integration. Continues evaluation of new SATCOM constellations and terminals. Continues evaluation of resiliency of systems in a degraded communication environment. Continues the evaluation and tests SDN wireless network capabilities. Continues evaluation and testing of mobile technologies. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.960 million supports COTM and new SATCOM constellation terminal certifications.					
Title: Civil Information Management (CIM) ***Description:*** The Civil Information Management Data Processing System (CIMDPS) is an automation system that assists active Civil Affairs (CA) and others engaged in civil-military operations to collect, process, analyze, maintain, mine, and deliver Civil Information and analysis products to support the Next Generation CIMDPS Systems. ***FY 2019 Plans:*** Completes development and integration of Link Analysis and Mobility, and Next Generation CIMDPS Hardware platform in support of CA communities, as a one-time cost. ***FY 2020 Base Plans:*** Funding required for follow-on development and integration of the Next Generation CIMDPS Hardware platform in support of CA communities. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of -$0.169 million is due to fewer testing requirements.	0.007	0.185	0.016	-	0.016
Title: Special Communications (SPCOM) Enterprise program ***Description:*** SPCOM includes organizations, practices, processes, services, networks, systems and subsystems that manage and provide clandestine exchange of information between elements (field-to-field, field-to-base, base-to-field) for worldwide deployed SOF units, often in austere environments with heavy adversarial monitoring. Acquisition efforts are structured for rapid, tailored development to counter adaptable emerging threats in all theaters of SOF sensitive missions. ***FY 2019 Plans:*** Continue segment development for the SPCOM enterprise; develops means and methods to provide near-term impact to operators. Continue development of anti-intrusion/anti-tamper capabilities. Continue extensive	4.502	4.254	8.016	-	8.016

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S700 / *Communications Equipment and Electronics Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
vulnerability assessments plus independent verification and validation. Acquisition efforts are structured for rapid, tailored development to counter adaptable emerging threats in all theaters of SOF sensitive missions. ***FY 2020 Base Plans:*** Continues segment development for the SPCOM enterprise; develops means and methods to provide near-term impact to operators. Continues development of anti-intrusion/anti-tamper capabilities. Continues extensive vulnerability assessments plus independent verification and validation. Acquisition efforts are structured for rapid, tailored development to counter adaptable emerging threats in all theaters of SOF sensitive missions. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $3.762 million will fulfill additional Theater Special Operations Commands' area and mission-specific tailored requirements for low-signature, threat-mitigated, sensitive missions as authorities to conduct these missions have expanded.					
Accomplishments/Planned Programs Subtotals	9.294	13.966	18.519	-	18.519

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0204WARRIOR: *Warrior Systems<$5M*	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing
• PROC/0204OTHER: *OTHER ITEMS <$5M*	52.718	119.427	103.910	0.028	103.938	149.394	81.064	107.128	68.215	Continuing	Continuing

Remarks

D. Acquisition Strategy

• SDN is a fielded program with ETIs into all variants: heavy, medium, and light, wide-band COTM, Mobile SOF Strategic Entry Point, and Airborne Intelligence Surveillance Reconnaissance transport variants. Commercial and government agency sources will be leveraged for required certifications, functional and operational tests, and acceptance support.

• CIM has an evolutionary acquisition strategy to enhance its capability to meet the CA communities emerging requirements.

• SPCOM is an ETI effort to provide and support multiple field mission sets full integrated with secure transports for complete end-to end capabilities. In particular, rapid, phased prototyping is prioritized to both develop operational-relevant prototypes but also to be flexible and agile in ensuring countermeasures against dynamically

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S700 / *Communications Equipment and Electronics Systems*

adapting special communication threats in all worldwide theaters. Commercial and government agency sources will be leveraged for required certifications, functional and operational tests, and acceptance support.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S700 / *Communications Equipment and Electronics Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Satellite Deployable Node (SDN) Development	Various	Various : Various	4.852	2.110	Dec 2017	4.806	Dec 2018	8.200	Mar 2019	-		8.200	Continuing	Continuing	-
Civil Information Management Data Processing System (CIMDPS) Development	PO	SOF AT&L -KS : MACDILL AFB	1.788	0.007	Mar 2018	0.185	Mar 2019	0.016	Mar 2020	-		0.016	0.000	1.996	-
Special Communications (SPCOM) Enterprise Capability Development	TBD	Various : Various	8.473	3.672	Feb 2018	3.329	Mar 2019	6.650	Mar 2020	-		6.650	Continuing	Continuing	-
SPCOM Technology Vulnerability Assessments	MIPR	MITRE : Bedford, MA	1.680	0.530	Dec 2017	0.669	Dec 2018	1.026	Dec 2019	-		1.026	Continuing	Continuing	-
		Subtotal	16.793	6.319		8.989		15.892		-		15.892	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SDN Market Research Evaluation and Testing	Various	Various : Various	3.765	2.675	Jan 2018	4.721	Feb 2019	2.287	Jun 2019	-		2.287	Continuing	Continuing	-
SPCOM Independent Verification and Validation	MIPR	MITRE : Bedford, MA	1.085	0.300	Dec 2017	0.256	Dec 2018	0.340	Dec 2019	-		0.340	Continuing	Continuing	-
		Subtotal	4.850	2.975		4.977		2.627		-		2.627	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.643	9.294		13.966		18.519		-		18.519	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S700 / *Communications Equipment and Electronics Systems*

SDN Schedule

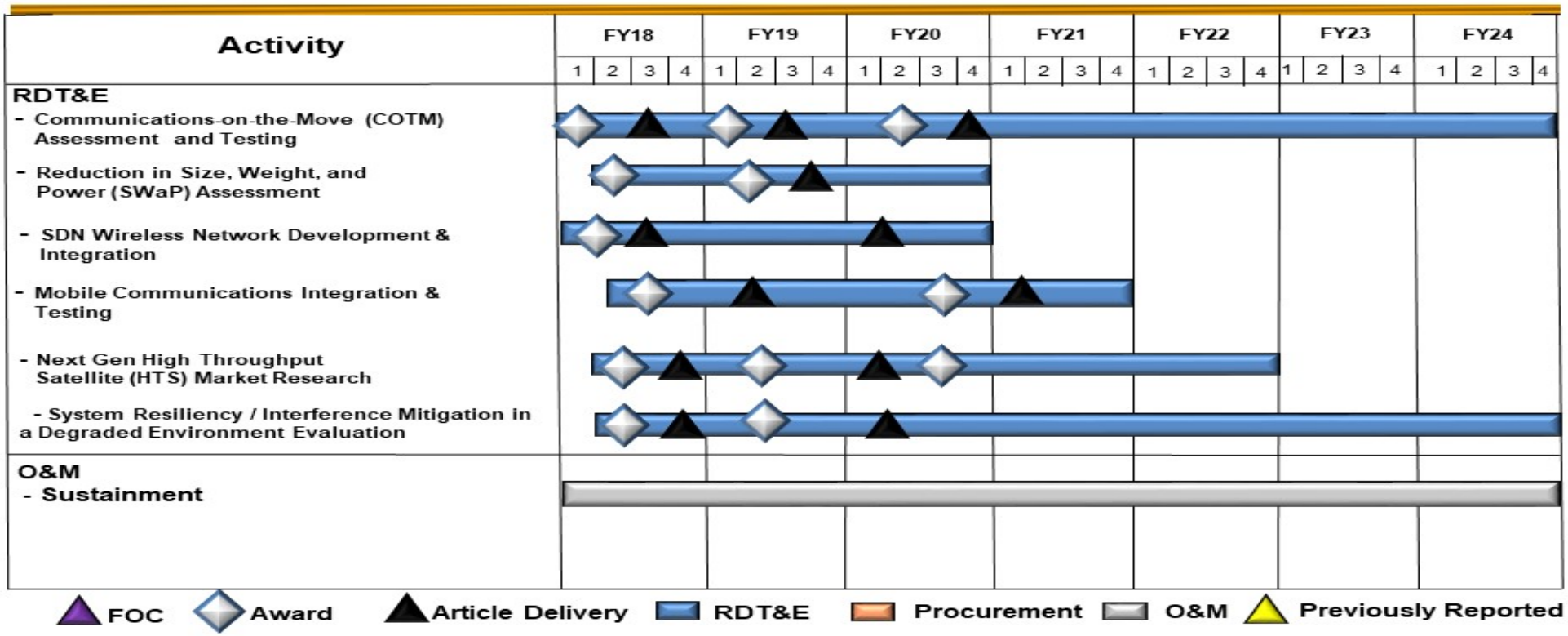

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S700 / *Communications Equipment and Electronics Systems*

SDN Schedule (con't)

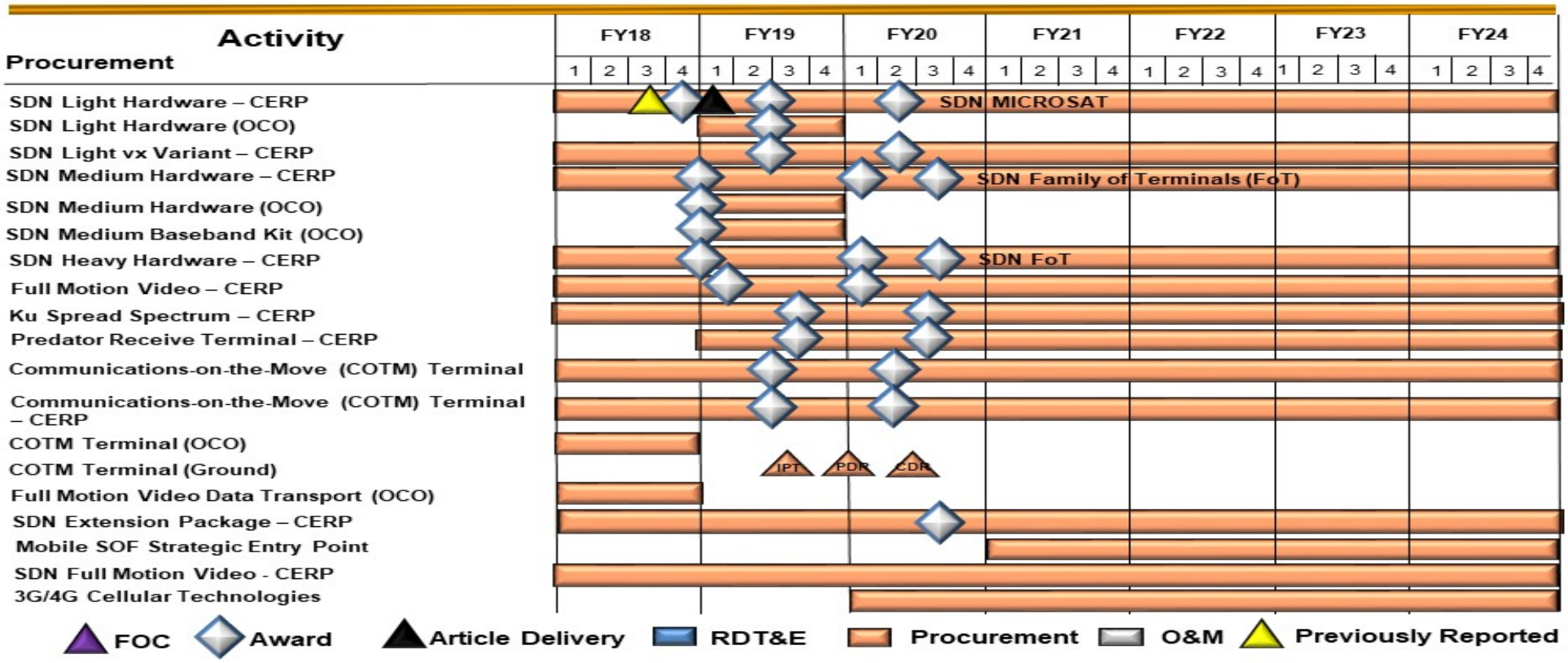

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S700 / *Communications Equipment and Electronics Systems*

Civil Information Management Data Processing System Schedule

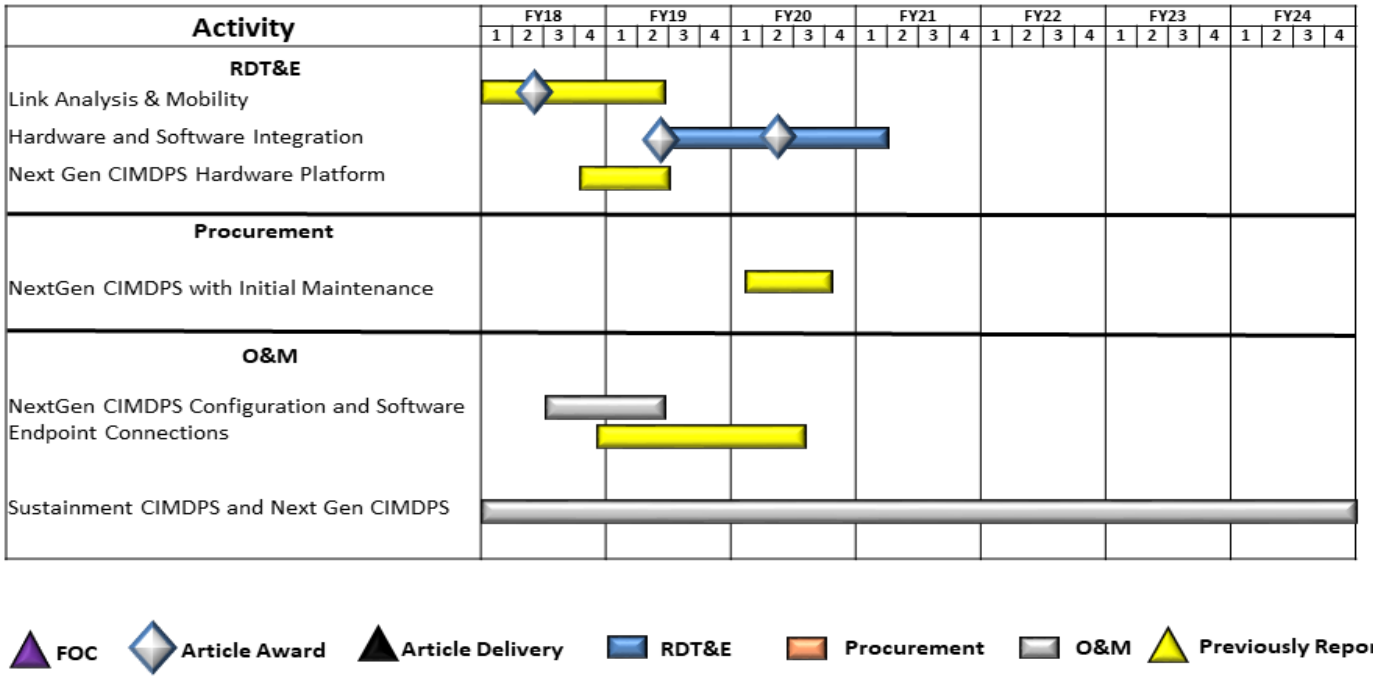

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S700 / *Communications Equipment and Electronics Systems*

(U) SCE Schedule

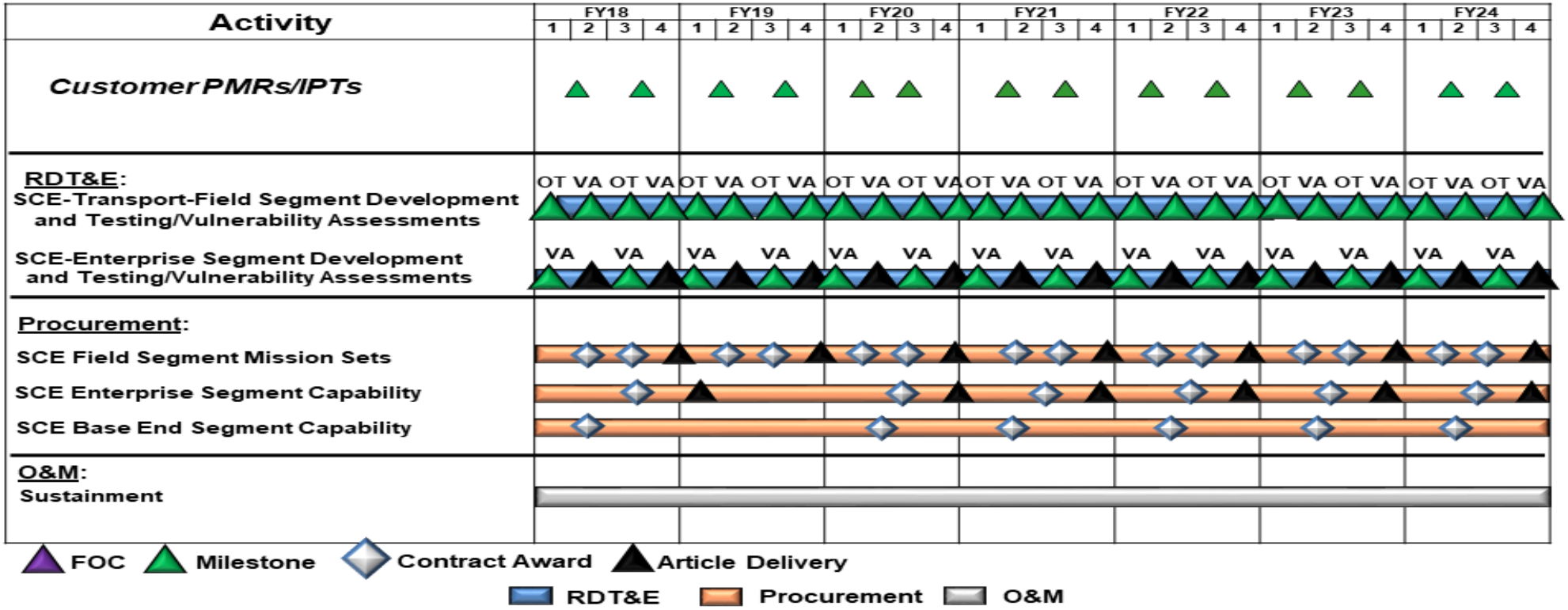

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S700 / *Communications Equipment and Electronics Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SOF Deployable Node (SDN)				
Communications-on-the-Move (COTM) Assessment & Testing	1	2018	4	2024
Assess Reduction in Size, Weight, and Power (SWaP)	2	2018	4	2020
SDN Wireless Network Integration & Testing	1	2018	4	2020
Mobile Technology Integration & Testing	3	2018	4	2021
Evaluate System Resiliency in Degraded Communications Environment	2	2018	4	2022
Next Generation High Throughput Satellite Market Research	2	2018	4	2024
CIVIL INFORMATION MANAGEMENT (CIM)				
Hardware and Software Integration	2	2019	1	2021
Special Communications (SPCOM) Enterprise Program				
Transport - Field Segment Kit Development	1	2018	4	2024
Enterprise Segment Services Development	1	2018	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / *Warrior Systems*	Project (Number/Name) S710 / *Tactical Systems Development*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S710: *Tactical Systems Development*	4.400	2.327	4.240	3.313	-	3.313	3.344	3.105	3.170	3.244	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for development, testing, and integration of specialized automation equipment to meet the unique requirements of Special Operations Forces (SOF). Specialized automation equipment will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. These operations are generally conducted in harsh environments, for unspecified periods and in locations requiring small unit autonomy. SOF must infiltrate by land, sea, and air to conduct unconventional warfare, direct action, or deep reconnaissance operations in denied areas against insurgent units, terrorists, or highly sophisticated threat forces. The requirement to operate in denied areas controlled by a sophisticated threat mandates that SOF systems remain technologically superior to threat forces to ensure mission success.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Tactical Local Area Network (TACLAN) Suites	2.327	4.240	3.313	-	3.313
Description: TACLAN provides SOF operational commanders and forward deployed forces advanced networking, automated data processing, storage, and display capabilities to support situational awareness, mission planning and execution, and command and control of forces. The TACLAN consists of Suites, Mission Planning Kits, Field Computing Devices, and tactical work stations. ***FY 2019 Plans:*** Continue integration and testing of Evolutionary Technology Insertion (ETI) for upgrading TACLAN Field computing devices and network suites. Continue development of secure mobile communications. Utilize outcomes of the secure mobile communications project to begin the development of edge computing. ***FY 2020 Base Plans:*** Continues integration and testing of evolutionary technology insertions. Specific technologies in assessments include secure wireless, secure data at rest, cross domain solutions, distributed cloud architecture, and edge computing. Continues the development, integration and assessment to improve tactical area networks that enable the operator on the battlefield. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of -$0.927M due to fewer testing requirements.					
Accomplishments/Planned Programs Subtotals	2.327	4.240	3.313	-	3.313

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S710 / *Tactical Systems Development*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0204OTHER: *OTHER ITEMS <$5M*	52.718	119.427	103.910	0.028	103.938	149.394	81.064	107.128	68.215	Continuing	Continuing

Remarks

D. Acquisition Strategy

The TACLAN evolutionary acquisition strategy includes the use of commercial and government agency sources, that will be leveraged for required certifications, functional and operational test, and acceptance support.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S710 / *Tactical Systems Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TACLAN FCD Upgrades	Reqn	Raven Tek : Tampa, FL	1.300	0.300	Jan 2018	0.800	Jun 2019	1.500	Jun 2020	-		1.500	Continuing	Continuing	-
Network Management Suite Upgrades	Reqn	Raven Tek : Tampa, FL	1.600	0.500	Mar 2019	1.200	Mar 2019	1.263	Jul 2020	-		1.263	Continuing	Continuing	-
Mobile Communications	Reqn	Smartronix Inc. : Tampa, FL	1.500	1.527	Jan 2018	1.200	Jan 2019	-		-		-	Continuing	Continuing	-
Edge Computing	Reqn	Raven Tek : Tampa, FL	0.000	0.000		1.040	Jun 2019	0.550	Jan 2020	-		0.550	Continuing	Continuing	-
		Subtotal	4.400	2.327		4.240		3.313		-		3.313	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.400	2.327		4.240		3.313		-		3.313	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S710 / *Tactical Systems Development*

TACLAN Schedule

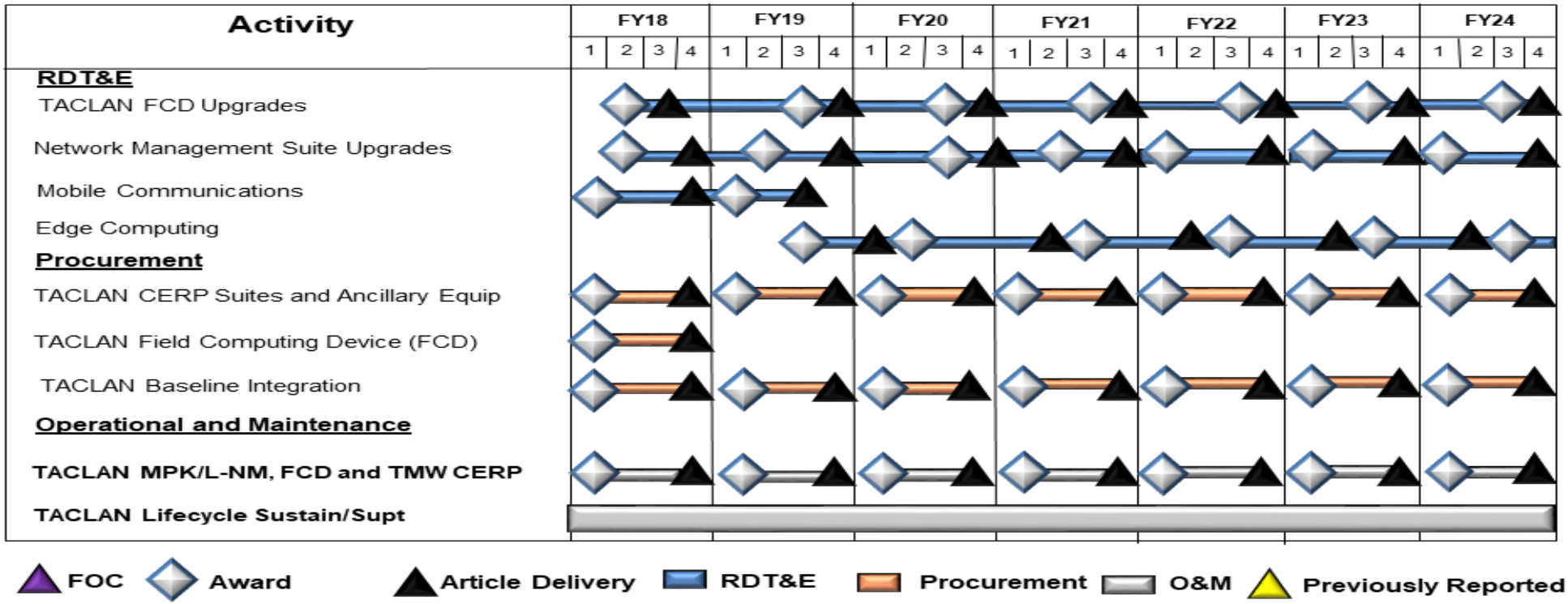

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S710 / *Tactical Systems Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Tactical Local Area Network (TACLAN) Suites				
TACLAN FCD Upgrades	2	2018	4	2024
Network Management Suite Upgrades	2	2018	4	2024
Mobility Comms	1	2018	3	2019
Edge Computing	3	2019	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / *Warrior Systems*	Project (Number/Name) S725 / *Tactical Radio Systems*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S725: *Tactical Radio Systems*	13.304	12.704	4.660	11.315	-	11.315	7.940	2.572	2.633	2.701	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project is for the development of all SOF tactical radio programs. Tactical Radios provide the critical Command, Control, Communications (C3) link between SOF Commanders and SOF Teams involved in operational missions and training exercises. They also provide interoperability with all Services, various agencies of the U.S. Government, Air Traffic Control, commercial agencies, and allied foreign forces. Tactical Radios rapidly and seamlessly establish and maintain mobile and fixed Command and Control (C2) communications between infiltrated/operational elements and higher echelon headquarters, allowing SOF to operate with any force combination in multiple environments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SOF Tactical Communications (STC)	12.633	4.589	10.642	-	10.642
Description: STC consists of the next-generation SOF Communication System and replaces most of the currently fielded SOF suite of tactical radios. Capabilities include real time, Hostile and Friendly Force information; Line of Sight (LOS) and Beyond LOS (BLOS) Communications; and access to Situational Awareness in the form of Intelligence inputs, broadcasts, and networks.					
FY 2019 Plans: Continue development, integration and testing of new capabilities in tactical radio equipment. Enable modernization and testing of Cryptography and GPS technology in accordance with DOD modernization directives for a fleet of more than 33,000 tactical radios. Enable integration and testing of emerging High Frequency (HF) waveform, the Mobile User Objective Waveform, emerging Mobile Ad Hoc Network (MANET) waveforms, and the Link-16 Tactical Data Link (TDL) waveform.					
FY 2020 Base Plans: Continues development, integration and testing of new capabilities in tactical radio equipment. Enables modernization and testing of Hand Held Link-16 in the form of a Mission Module to be used with the PRC-163 handheld radio. Modernizes high frequency platforms from two systems into a single system that will provide standard, wide band, and Low Probability of Intercept/Detection (LPI/D) capabilities in a single Government owned form factor.					
FY 2019 to FY 2020 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S725 / *Tactical Radio Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Increase of $6.053 million enables the initiation of two emerging capabilities in FY20 related to Link-16 and HF. These efforts significantly reduce the operational load of the operator by reducing the quantity and form factor of comm kits while significantly enhancing capabilities.					
Title: Blue Force Tracking (BFT) ***Description:*** BFT is a family of devices used to remotely track and monitorSOF unit personnel. The capability enhances C2, threat warning, force protection, situational awareness, combat search and rescue, counter-fratricide, and battlefield visualization. This capability is unique to SOF because it requires the devices to be lightweight, portable, secure and a Low Probability of Intercept/Low Probability of Detection. ***FY 2019 Plans:*** Continue development and test of new capabilities in BFT equipment. ***FY 2020 Base Plans:*** Continues development and test of new capabilities in BFT equipment. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase $0.602 million to allow for rapid prototyping and additional product development focused on denied environments.	0.071	0.071	0.673	-	0.673
Accomplishments/Planned Programs Subtotals	12.704	4.660	11.315	-	11.315

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0204WARRIOR: *Warrior Systems<$5M*	287.513	458.499	298.480	36.212	334.692	331.626	312.728	332.200	339.365	Continuing	Continuing

Remarks

D. Acquisition Strategy

• STC is a Commercial-Off-The-Shelf/Non-Development Item program with evolutionary technology insertions (ETIs). Commercial and government agency sources will be leveraged for required certifications, functional and operational tests, and acceptance support.

• BFT is a fielded program with ETIs leveraging commercial and other government agency sources for required certifications, functional and operational tests, and technology updates.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S725 / *Tactical Radio Systems*

E. Performance Metrics

N/A.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / *Warrior Systems*	Project (Number/Name) S725 / *Tactical Radio Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOF Tactical Communications Radio Development (STC)	MIPR	Various : Various	9.984	10.797	Jan 2018	4.211	Apr 2019	10.184	Jan 2020	-		10.184	Continuing	Continuing	-
Blue Force Tracking Development	MIPR	Various : Various	2.462	0.000	Nov 2017	-		0.598	Nov 2019	-		0.598	Continuing	Continuing	-
		Subtotal	12.446	10.797		4.211		10.782		-		10.782	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
STC Testing	Option/ TBD	Various : Various	0.858	1.836	Jan 2018	0.378	Jan 2019	0.458	Jan 2020	-		0.458	Continuing	Continuing	-
Blue Force Tracking Testing	MIPR	Various : Variuos	-	0.071	Nov 2017	0.071	Jan 2019	0.075	Nov 2019	-		0.075	Continuing	Continuing	-
		Subtotal	0.858	1.907		0.449		0.533		-		0.533	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.304	12.704		4.660		11.315		-		11.315	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S725 / *Tactical Radio Systems*

STC/NGTC Schedule

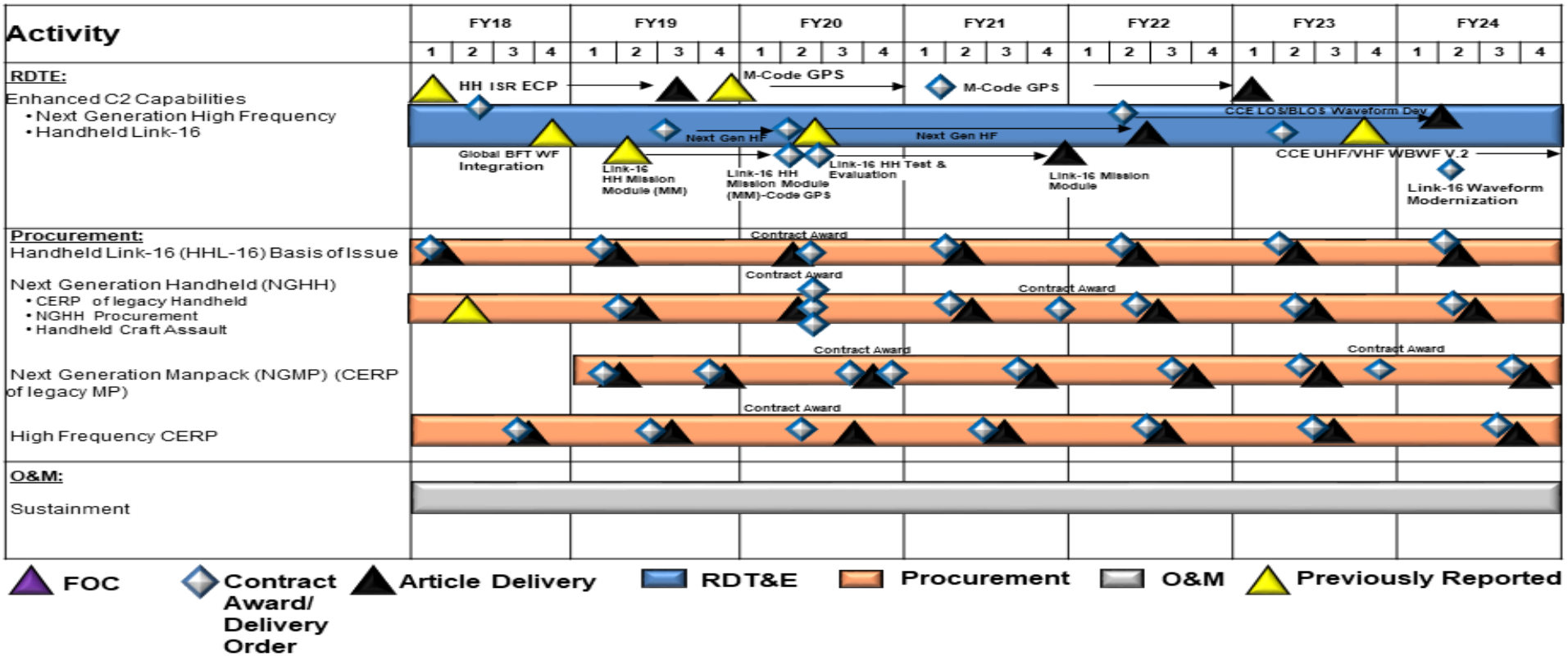

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S725 / *Tactical Radio Systems*

BFT Schedule

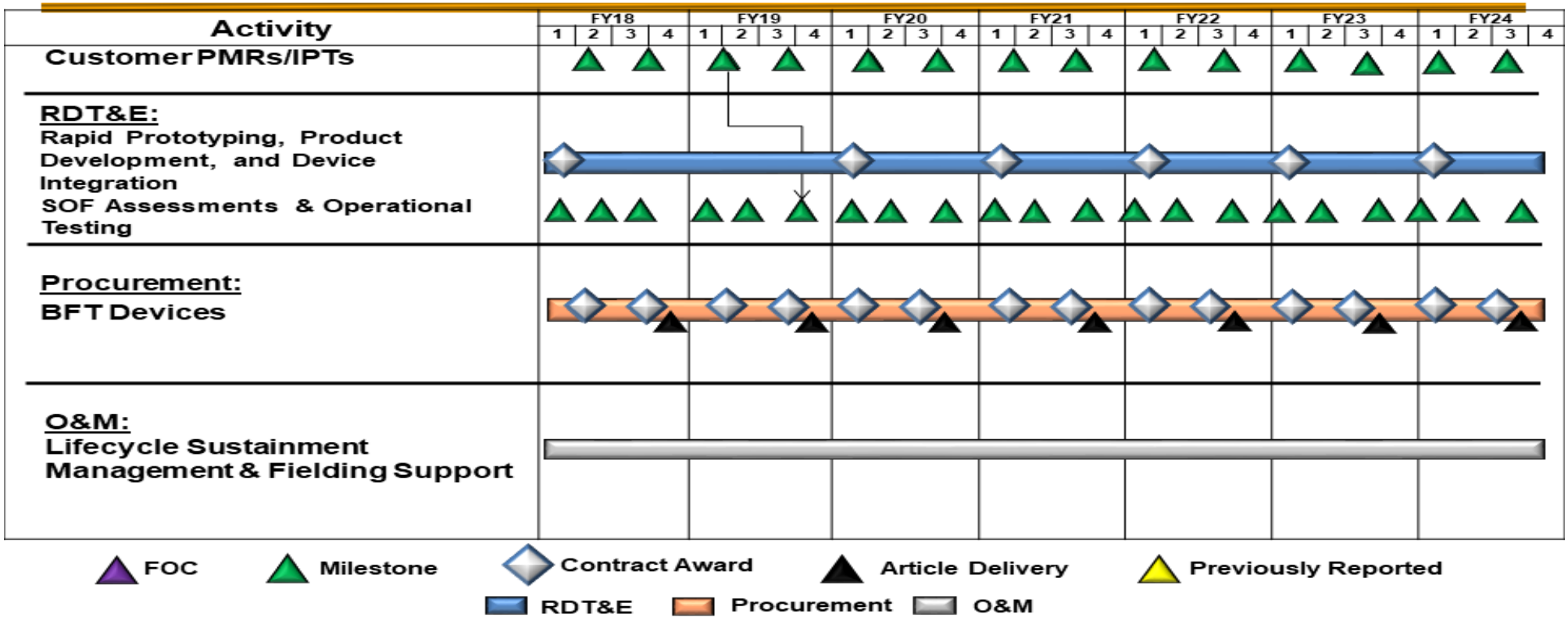

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S725 / *Tactical Radio Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SOF Tactical Communications Radio				
Development	1	2018	4	2024
Test and Evaluation	2	2018	4	2024
Blue Force Tracking				
Rapid Prototyping	1	2018	4	2024
SOF Assessment & Operational Testing	1	2018	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / *Warrior Systems*	Project (Number/Name) S800 / *Munitions Advanced Development*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S800: *Munitions Advanced Development*	44.666	16.852	27.770	10.741	-	10.741	2.869	3.840	8.339	8.533	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds advanced engineering, operational system development and qualification efforts related to specialized munitions and equipment to meet the unique requirements of SOF.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Munitions Advanced Development	0.512	0.436	0.588	-	0.588
Description: The Munitions Advanced Development program provides for Insensitive Munitions (IM) technology development and evaluations that allow SOF munitions to pass testing which includes bullet impact, sympathetic detonation, fast cook off, slow cook off and shaped charge test. Testing is in accordance with the United States Special Operations IM Testing Plan. Munitions product improvements are tested in accordance with command priorities. ***FY 2019 Plans:*** Continue proof of concept development and IM testing on various munitions. Continue full scale testing to satisfy safety requirements in Military Standard 2105C (Department of Defense Test and Method Standard: Hazard Assessment Test for Non-Nuclear Munitions, 26 Sep 2006). ***FY 2020 Base Plans:*** Continues proof of concept development and IM testing on various munitions. Continues full scale testing to satisfy safety requirements in Military Standard 2105C (Department of Defense Test and Method Standard: Hazard Assessment Test for Non-Nuclear Munitions, 26 Sep 2006). ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.152 million is for full scale testing.					
Title: Stand-Off Precision Guided Munitions (SOPGM)	2.374	8.734	-	-	-
Description: SOPGM provides for the integration and testing of service-common and recently developed precision guided munitions on SOF-unique platforms. This project received a congressional add in FY 2018 and 2019.					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S800 / *Munitions Advanced Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
FY 2019 Plans: Continue integration and testing of precision guided munitions on SOF UAS platforms. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of $8.734 million due to completion of integration and transition to procurement.					
Title: Precision Strike Systems (PSS) ***Description:*** Guided Rocket Systems provides for the engineering, integration and testing of service-common and recently developed precision guided munitions on SOF-unique platforms. ***FY 2019 Plans:*** Initiates the engineering, integration and testing of service-common and recently developed precision guided munitions on SOF-unique platforms. ***FY 2020 Base Plans:*** Continue the engineering, integration and testing of service-common and recently developed precision guided munitions on SOF-unique platforms. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $5.762M is to develop new systems to counter new threats.	-	2.500	8.262	-	8.262
Title: Aircraft Survivability Equipment (ASE) ***Description:*** The ASE program includes development of new systems, pre-planned product improvements/ upgrades of fielded survivability equipment, and continues development of flare countermeasures.	2.409	-	-	-	-
Title: Counter Unmanned Aerial System (C-UAS) ***Description:*** Develops a 40MM Air Bursting Grenade launched from a Grenade Machine Gun. ***FY 2019 Plans:*** This funding will support the development and evaluation of High Velocity 40mm High Explosive Air Bursting Ammunition to be used with grenade machine guns. Improving the air-Bursting capability of this currently fielded weapon system will provide kinetic Counter-Unmanned Aerial System (C-UAS) capabilities to the Warfighter. ***FY 2020 Base Plans:***	-	1.100	1.891	-	1.891

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S800 / *Munitions Advanced Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continue to support the development and evaluation of High Velocity 40mm High Explosive Air Bursting Ammunition to be used with grenade machine guns. Improve the air-Bursting capability of this currently fielded weapon system will provide kinetic Counter-Unmanned Aerial System (C-UAS) capabilities to the Warfighter. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.791 million to continue support of development and evaluation efforts.					
Accomplishments/Planned Programs Subtotals	5.295	12.770	10.741	-	10.741

	FY 2018	FY 2019
Congressional Add: SOPGM	11.557	15.000
FY 2018 Accomplishments: Small Glide Munition (to include new low collateral damage warhead) development and integration onto UAS platforms. ***FY 2019 Plans:*** Continue integration and testing of Small Glide Munition on SOF UAS platforms.		
Congressional Adds Subtotals	11.557	15.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0203ORDN: *Ordnance Items <$5M*	173.584	425.892	279.992	138.252	418.244	336.879	287.002	296.022	346.659	Continuing	Continuing

Remarks

D. Acquisition Strategy

Munitions Advanced Development: Munitions and packaging redesign shall take place within government laboratories, as well as in industry, depending on the munitions. IM solutions shall be tested on a small scale for proof of principle. Planned product improvements are tested at Army, Navy, and Air Force test centers leveraging mid-tier acquisition authorities and other transaction authorities (OTAs).

SOPGM: Integration and developmental testing of precision guided munitions will be conducted using government laboratories or industry partners depending on the munitions for various SOF platforms.

PSS: Integration and developmental testing of the launcher systems with follow-on government-led integration effort leveraging lessons learned from similar rapid integration efforts on other combat tested SOF platforms.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S800 / *Munitions Advanced Development*

ASE: Development of new systems, pre-planned product improvements/upgrades of fielded survivability equipment, and continue development of flare countermeasures.

C-UAS: Development and Evaluation of 40MM High Explosive Air Bursting Ammunition shall be conducted using government laboratories.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S800 / *Munitions Advanced Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Stand-off Precision Guided Munitions (SOPGM) MQ-9 LSDB/SDB II Weapon Mount Hardware Development & Integration	SS/ Various	General Atomics : NY	2.183	0.974	Jan 2018	6.594	Dec 2018	-		-		-	0.000	9.751	-
SOPGM MQ-9 LSDB Software Development & Integration	SS/ Various	Boeing : MO	0.300	1.400	Jan 2018	1.040	Feb 2019	-		-		-	0.000	2.740	-
SOPGM Small Glide Munition(SGM)/MQ-1C Integration Congressional Plus Up	C/Various	Dynetics : AL	-	6.633	Jul 2018	1.636	Jan 2019	-		-		-	0.000	8.269	-
SOPGM Small Glide Munition(SGM)/MQ-9 Integration Congressional Plus Up	C/Various	Dynetics : AL	-	-		6.973		-		-		-	0.000	6.973	-
Aircraft Survivability Equipment Development	Various	Various : Various	-	2.409	Jan 2018	-		-		-		-	0.000	2.409	-
Counter Unmanned Aerial System (CUAS)	C/Various	Various : Various	-	-		1.100	Feb 2019	1.891	Nov 2019	-		1.891	0.000	2.991	-
Precision Strike System (PSS)	C/Various	Various : Various	-	-		2.500	Feb 2019	8.262	Nov 2019	-		8.262	Continuing	Continuing	-
Prior Year	C/Various	Various : Various	34.132	-		-		-		-		-	0.000	34.132	-
		Subtotal	36.615	11.416		19.843		10.153		-		10.153	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOPGM SGM Support Congressional Plus Up	C/Various	Dynetics : AL	2.354	2.400	May 2018	3.115	May 2019	-		-		-	0.000	7.869	-
Prior Year	C/Various	Various : Various	1.100	-		-		-		-		-	0.000	1.100	-
		Subtotal	3.454	2.400		3.115		-		-		-	0.000	8.969	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160431BB / *Warrior Systems*	Project (Number/Name) S800 / *Munitions Advanced Development*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOPGM MQ-9 LSDB/SDB II Test	SS/TBD	Boeing : MO	-	-		0.694	May 2019	-		-		-	0.000	0.694	-
SOPGM MQ-9 LSDB/ SDB II Test Overseas Contingency Operations (OCO)	SS/TBD	Boeing : MO	-	-		0.406	May 2019	-		-		-	0.000	0.406	-
SOPGM SGM Test Congressional Plus Up	C/Various	Dynetics : AL	2.474	2.524	Apr 2018	-		-		-		-	0.000	4.998	-
SOPGM SGM/MQ-1C Test Congressional Plus Up	C/Various	Dynetics : AL	-	-		1.638	May 2019	-		-		-	0.000	1.638	-
SOPGM Small Glide Munition(SGM)/MQ-9 Integration Congressional Plus Up	C/Various	Dynetics : AL	-	-		1.638	Dec 2019	-		-		-	0.000	1.638	-
Munitions - Insensitive Munitions (IM) Evaluation	C/FFP	US Air Force Air Armaments Center : Eglin, AFB, FL	0.056	0.058	Dec 2017	0.059	Dec 2018	0.060	Dec 2019	-		0.060	Continuing	Continuing	-
Munitions - IM Testing	Allot	ARDEC : Picatinny Arsenal, NJ	0.307	0.306	Dec 2017	0.227	Dec 2018	0.375	Dec 2019	-		0.375	Continuing	Continuing	-
Munitions Advanced Development - Obtain Munitions Test Articles	C/FFP	General Dynamics : Canada	0.141	0.148	Dec 2017	0.150	Dec 2018	0.153	Dec 2019	-		0.153	Continuing	Continuing	-
Prior Year	C/Various	Various : Various	1.619	-		-		-		-		-	0.000	1.619	-
		Subtotal	4.597	3.036		4.812		0.588		-		0.588	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	44.666	16.852		27.770		10.741		-		10.741	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S800 / *Munitions Advanced Development*

SOPGM Schedule

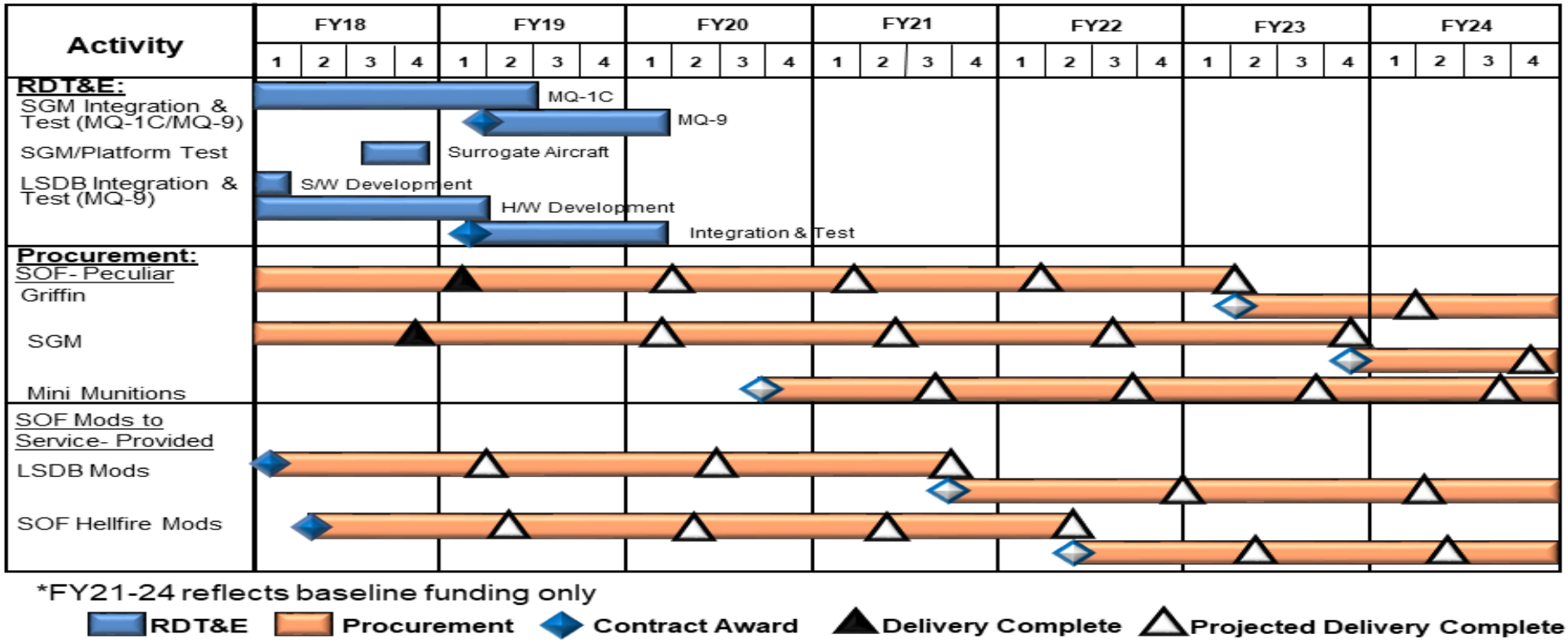

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S800 / *Munitions Advanced Development*

Ordnance Items < $5M Schedule

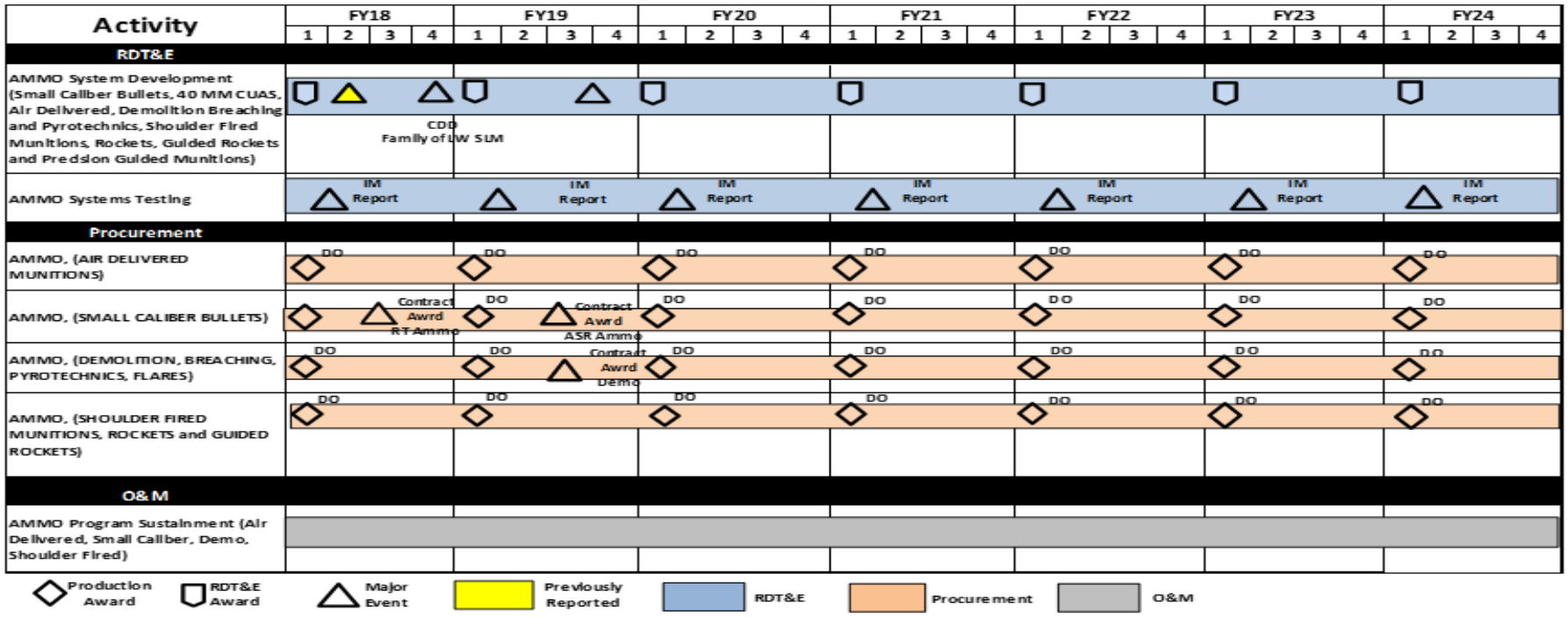

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S800 / *Munitions Advanced Development*

CUAS Schedule

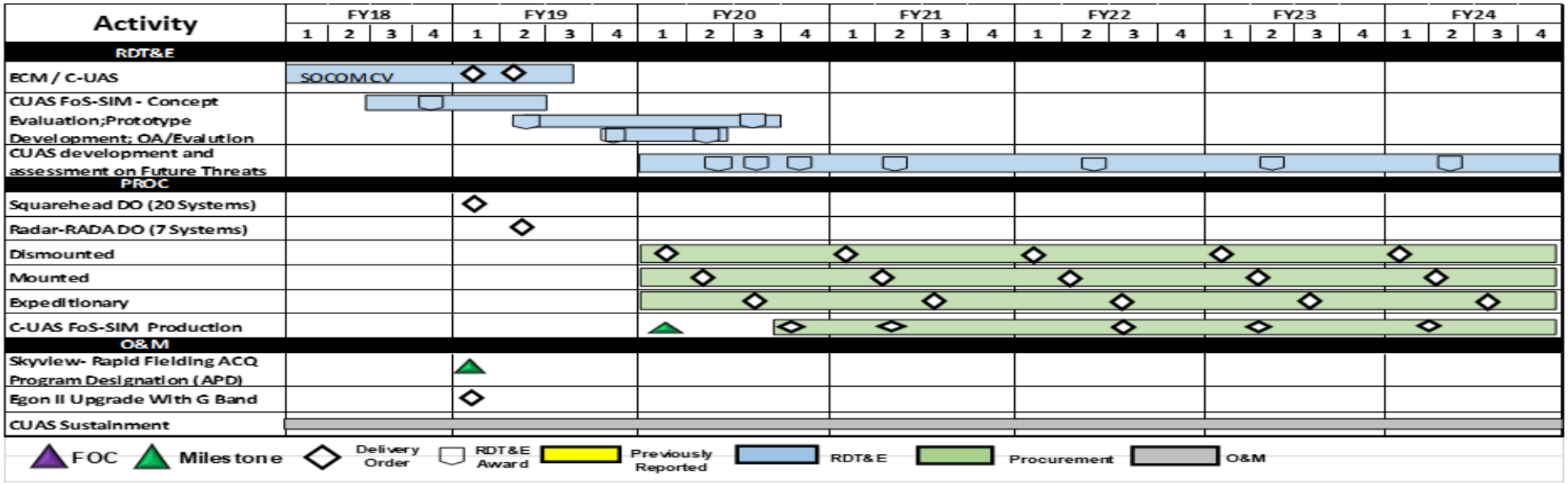

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160431BB / *Warrior Systems*	**Project (Number/Name)** S800 / *Munitions Advanced Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Stand-off Precision Guided Munitions (SOPGM) Small Glide Munition(SGM) Integration				
MQ-1C Integration/Test	1	2018	3	2019
MQ-9 Integration/Test	2	2019	2	2020
Platform Test	3	2018	4	2018
SOPGM LSDB/SDB II Integration & Test				
Software Development	1	2018	1	2018
Weapon Mount Hardware Development	1	2018	2	2019
Interation & Test	1	2019	2	2020
Munitions (Ordnance Items)				
Evaluations of munitions test articles	1	2018	4	2024
Munitions testing	1	2018	4	2024
Obtain munitions test articles	1	2018	4	2024
Counter Unmanned Aerial Systems (C-UAS)				
Counter Unmanned Aerial Systems (C-UAS)	2	2019	1	2020
Precision Strike System (PSS)				
Precision Strike System (PSS)	2	2019	4	2024

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160432BB / *Special Programs*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	29.463	2.300	2.479	21.805	-	21.805	18.469	17.729	22.610	22.937	Continuing	Continuing
S500E: *Special Programs*	29.463	2.300	2.479	21.805	-	21.805	18.469	17.729	22.610	22.937	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	1.978	2.479	2.478	-	2.478
Current President's Budget	2.300	2.479	21.805	-	21.805
Total Adjustments	0.322	0.000	19.327	-	19.327
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.394	-			
• SBIR/STTR Transfer	-0.072	-			
• Other Adjustments	-	-	19.327	-	19.327

Change Summary Explanation

Funding:

FY2018: Net increase or $0.322 million is due to transfer of funds to Small Business Innovative Research/Small Business Technology Transfer programs (-$0.072 million) and a reprogramming of $0.394 million with details available under separate cover.

FY19: None.

FY2020: Increase of $19.327 million is due to other adjustments available under separate cover.

Schedule: None.

Technical: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	20.081	33.576	44.970	37.377	5.000	42.377	39.154	36.252	38.152	40.058	Continuing	Continuing
S855: *Unmanned ISR*	20.081	33.576	44.970	37.377	5.000	42.377	39.154	36.252	38.152	40.058	Continuing	Continuing

A. Mission Description and Budget Item Justification

NOTE: Unmanned Intelligence, Surveillance, and Reconnaissance (ISR) includes the consolidation of Special Applications for Contingencies (SAFC) (previously Program Element (PE) 0304210BB); MQ-1 Unmanned Aerial Vehicle (UAV), (previously PE 0305219BB); MQ-8, (previously PE 0305231BB); RQ-11, UAV (previously PE 1105232BB); and RQ-7 UAV, (previously PE 1105233BB).

This program element is part of the Military Intelligence Program (MIP). Unmanned ISR rapidly develops and deploys special capabilities to perform Intelligence, Surveillance, and Reconnaissance (ISR) for deployed Special Operations Forces (SOF) using non-traditional means. USSOCOM has been designated as the DOD lead for planning, synchronizing, and as directed, executing global operations against terrorist networks and targets. USSOCOM requires the capability to find, fix, and finish time-sensitive high-value fixed and fleeting targets at the unit and team level without placing personnel and units in harm's way. These targets can often only be identified with patient collection of information and require rapid, decisive action during the short periods in which they present themselves. This PE addresses the primary areas of ISR and Targeting capabilities for SOF. This R-1 program element includes $5.000 million of FY2020 enduring Overseas Contingency Operations funding.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	34.766	38.970	30.549	0.000	30.549
Current President's Budget	33.576	44.970	37.377	5.000	42.377
Total Adjustments	-1.190	6.000	6.828	5.000	11.828
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-6.190	-			
• Congressional Rescissions	-	-			
• Congressional Adds	5.000	6.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other	-	-	6.828	5.000	11.828

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Project: S855: *Unmanned ISR*		
Congressional Add: *Anti-ice for Group 3 and above UAV's*	5.000	6.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Congressional Add Subtotals for Project: S855	5.000	6.000
Congressional Add Totals for all Projects	5.000	6.000

Change Summary Explanation

Funding:

FY 2018: Net decrease of -$1.190 million due to congressional add for UAS anti-icing ($5.000 million) and congressional directed program decrease to Special Applications for Contingencies (-$6.190 million).

FY 2019: Increase of $6.000 million due to congressional add for Group 3 and above UAS anti-icing.

FY 2020: Net increase of $11.828 million for SOF-Peculiar unmanned ISR payloads ($6.828M) and overseas contingency operations funding for development of various advanced payloads to support ISR payload requirements in support of SOF missions to include counterterrorism execution order missions ($5.000M).

Schedule: None.

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / *Unmanned ISR*	Project (Number/Name) S855 / *Unmanned ISR*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S855: *Unmanned ISR*	20.081	33.576	44.970	37.377	5.000	42.377	39.154	36.252	38.152	40.058	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project is part of the Military Intelligence Program (MIP). It rapidly develops and deploys special capabilities to perform intelligence, surveillance, and reconnaissance (ISR) for deployed Special Operations Forces (SOF) using non-traditional means.

Group 1, 2, 3 and 4, Unmanned Aerial Systems (UAS) developmental efforts are to identify, develop, integrate, and test SOF-unique mission kits, mission payloads, air vehicle enhancements, and modifications to ground control stations. Based on stakeholder input and requirements, Special Applications for Contingencies (SAFC) develops and integrates UAS payloads to advance ISR capabilities that address dynamic and emergent operational needs of the SOF user. Efforts include improving imagery intelligence and electronic warfare payloads, capitalizing on developing technologies to reduce size, weight and power while addressing processing and data management challenges. This program also provides a mechanism for SOF user combat evaluation of emerging sensor technologies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: SAFC	23.309	20.679	22.276	-	22.276
Description: Provides for efforts to develop and integrate Unmanned Aerial Systems (UAS) payloads and technologies, leveraging DOD middle tier acquisition (MTA) strategy and other rapid prototyping capacity, to rapidly develop and field ISR capabilities to address dynamic and emergent operational needs and vulnerabilities of the SOF user. Efforts include improving imagery intelligence and electronic warfare payloads, capitalizing on developing technologies to reduce size, weight and power while addressing processing and data management challenges. It also provides a mechanism for SOF user combat evaluation of emerging sensor technologies. SAFC applies focused Research & Development (R&D) for relatively low cost solutions to provide short lead-time contingency planning requirements where focused R&D will allow for test and evaluation of leading edge solutions to emergent problem sets.					
FY 2019 Plans: Continue development and combat evaluation of selected sensor delivery platforms and mounted or deliverable ISR capabilities for global contingencies including short-notice requirements. Continue evaluation of unique sensor technologies, persistent stare and quick reaction systems.					
FY 2020 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*	**Project (Number/Name)** S855 / *Unmanned ISR*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continues development and combat evaluation of selected sensor delivery platforms and mounted or deliverable ISR capabilities for global contingencies including short-notice requirements. Continues evaluation of unique sensor technologies, persistent stare and quick reaction systems. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $1.597 million is for additional payload development and platform enhancements.					
Title: Group 1 UAS ***Description:*** Group 1 UAS are small tactical systems, less than 20 pounds in weight. Provides for rapid development and prototyping efforts to identify, develop, integrate, and test SOF-unique mission kits. Leverages SAFC and conduct MTA strategies to rapidly develop and field capabilities. ***FY 2019 Plans:*** Continue integration and testing of SOF-unique mission kits, mission payloads, and modifications to the small tactical UAS and ground control station, to include but not limited to: improved capabilities for geo-location, collection of push-to-talk, communications, specialized tagging, tracking, and locating, and enhanced communications relay and work to miniaturize previously developed payloads. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY20, all funding has been consolidated under the EOTACS program.	0.355	0.329	-	-	-
Title: Expeditionary Organic Tactical Airborne ISR Capability Set (EOTACS) ***Description:*** EOTACS systems are less than 55 pounds in weight and include fixed wing, Vertical Takeoff and Landing, and tethered platforms. Provides for rapid development and prototyping efforts to identify, develop, integrate, and test SOF-unique mission kits. Leverages SAFC to rapidly develop and field capabilities. ***FY 2020 Base Plans:*** Group 1 UAS funding is incorporated into the EOTACS program starting in FY20. Continues integration and testing of SOF-unique mission kits, mission payloads, and modifications to the small tactical UAS and ground control station, to include but not limited to: improved capabilities for geo-location, collection of push-to-talk, communications, specialized tagging, tracking, and locating, and enhanced communications relay and work to miniaturize previously developed payloads. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY20, all Group 1 UAS funding has been consolidated under the EOTACS program.	-	-	0.279	-	0.279
Title: Group 2 MTUAS	4.912	6.262	7.854	-	7.854

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*	**Project (Number/Name)** S855 / *Unmanned ISR*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Description: Group 2 MTUAS are medium tactical systems, between 21 pounds and 55 pounds in weight. Provides for development efforts utilizing a MTA strategy to rapidly identify, develop, integrate, and test SOF-unique mission kits. ***FY 2019 Plans:*** Continue integration and testing of SOF-unique mission capabilities for the medium tactical UAS, to include but not limited to: signals intelligence gathering, full motion video, and geo-location. ***FY 2020 Base Plans:*** Continues integration and testing of SOF-unique mission capabilities to meet new medium tactical UAS requirements, to include but not limited to: signals intelligence gathering, full motion video, geo-location, and decreased footprint. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $1.592 million is for additional integration and testing of SOF-unique mission capabilities to meet new medium tactical UAS requirements.					
Title: Group 3 UAS ***Description:*** Group 3 UAS are systems, between 55 pounds and 1320 pounds in weight. Provides for development efforts to identify, develop, integrate, and test SOF-unique mission kits. ***FY 2019 Plans:*** Develop various advanced payloads to support ISR payload requirements in support of SOF missions to include counterterrorism execution order missions. Current Service payloads are insufficient for precision application of SOF mission sets. (OCO Funding) ***FY 2020 Base Plans:*** N/A ***FY 2020 OCO Plans:*** Develops various advanced payloads to support ISR payload requirements in support of SOF missions to include counterterrorism execution order missions. Current Service payloads are insufficient for precision application of SOF mission sets. ***FY 2019 to FY 2020 Increase/Decrease Statement:***	-	5.000	0.000	5.000	5.000

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*	**Project (Number/Name)** S855 / *Unmanned ISR*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
None.					
Title: Group 4 UAS ***Description:*** Group 4 UAS are large systems that weigh greater than 1,320 pounds and fly higher than flight level 180. Provides for development efforts to identify, develop, integrate, and test SOF-unique mission kits. ***FY 2019 Plans:*** Develop and integrate Beyond Line of Sight (BLOS) wiring harnesses required to operate SOF-unique sensors, VORTEX encrypted data link capability, and Persistent Close Air Support (PCAS) collaborative engagement management capabilities on the SOF Gray Eagle Extended Range UAS. (OCO Funding) ***FY 2020 Base Plans:*** Develops, tests, and integrates SOF peculiar emerging technology mission kits, mission payloads, weapons, and modification on MQ-1C UAVs, Ground Control Stations (GCS) and training systems. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.268 million is for Grey Eagle Extended Range SOF Peculiar integration.	-	6.700	6.968	-	6.968
Accomplishments/Planned Programs Subtotals	28.576	38.970	37.377	5.000	42.377

	FY 2018	FY 2019
Congressional Add: Anti-ice for Group 3 and above UAV's	5.000	6.000
FY 2018 Accomplishments: Developed anti-ice solutions for Group 3 and above UAV's		
FY 2019 Plans: Continue development of anti-ice solutions for Group 3 and above UAV's.		
Congressional Adds Subtotals	5.000	6.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0201UMNISR: *Unmanned ISR*	69.923	74.708	15.208	8.207	23.415	31.230	23.407	24.335	27.819	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*	**Project (Number/Name)** S855 / *Unmanned ISR*

D. Acquisition Strategy

SAFC acquisition strategy is evolutionary and spiral-based for technology insertion and low volume procurement. Leverages a Middle Tier Acquisition strategy to provide rapid development and fielding of dynamic and emergent operational needs. SAFC utilizes existing competed contract vehicles to the maximum extent possible for minor development and integration and modification of Government-Off-The-Shelf/Commercial-Off-The-Shelf equipment. It utilizes limited/full and open competition contracts for major developments.

The Group 1 UAS/EOTACS are evolutionary acquisition programs that deliver, integrate, and qualify SOF-unique mission kits, mission payloads, weapons, air vehicle enhancements, and ground control station upgrades. These capabilities are obtained through a thorough stakeholder's analysis in order to provide well and broadly defined capabilities. A well-defined stakeholder requirement facilitates rapid development and integration of capabilities, thus more rapidly providing capability to the field. Contracting methods depend on the type of development effort. Competitive source selection will be conducted as much as possible. Proprietary considerations may direct some effort to the Original Equipment Manufacturer (OEM).

Group 2 MTUAS are evolutionary acquisition programs that deliver, integrate, and qualify SOF-unique mission kits, mission payloads, weapons, air vehicle enhancements, training systems, and ground control station upgrades. These capabilities are obtained through a middle tier acquisition strategy that includes a thorough stakeholder's analysis to provide well and broadly defined capabilities. A well-defined stakeholder requirement facilitates rapid development and integration of capabilities, thus more rapidly providing capability to the field. Contracting methods depend on the type of development effort. Competitive source selection will be conducted as much as possible. Proprietary considerations may direct some effort to the OEM.

Group 3 UAS are evolutionary acquisition programs that deliver, integrate, and qualify SOF-unique mission kits, mission payloads, weapons, air vehicle enhancements, and ground control station upgrades. These capabilities are obtained through a thorough stakeholder's analysis in order to provide well and broadly defined capabilities. A well-defined stakeholder requirement facilitates rapid development and integration of capabilities, thus more rapidly providing capability to the field. Contracting methods depend on the type of development effort. Competitive source selection will be conducted as much as possible. Proprietary considerations may direct some effort to the OEM.

Group 4 UAS is an evolutionary acquisition program that develops, tests, and integrates SOF peculiar emerging technology mission kits, mission payloads, weapons, and modifications on MQ-1C UAVs, GCS, and training systems. Group 4 UAS provides rapid prototype activities and technology maturation events to increase situational awareness and lethality. Contract types include a mix of cost type and fixed price. Proprietary issues with the aircraft and GCS software as well as aircraft modification considerations dictate sole source contracts. Group 4 UAS leverages service common Contractor Logistics Support (CLS) and developmental activities and contracts for aircraft and ancillary equipment development, improvement, and sustainment.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*	**Project (Number/Name)** S855 / *Unmanned ISR*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Special Applications for Contingencies (SAFC) Platform/Payload Development and Integration	MIPR	Smartronix Inc. : Hollywood, MD	-	2.603	Dec 2017	-		-		-		-	0.000	2.603	-
SAFC Platform/Payload Development and Integration	MIPR	Johns Hopkins University : Baltimore, MD	-	1.551	Dec 2017	0.500	Dec 2018	0.500	Dec 2019	-		0.500	Continuing	Continuing	-
SAFC Platform/Payload Development and Integration	MIPR	Cambridge International : Cambridge, MD	-	1.076	May 2018	10.641	May 2019	11.500	Nov 2019	-		11.500	Continuing	Continuing	-
SAFC Platform/Payload Development and Integration	MIPR	NEANY Atlantic Dive Supply : Virginia Beach, VA	-	0.708	Mar 2018	-		-		-		-	0.000	0.708	-
SAFC Heat Coat UAS Anti-Icing	MIPR	Cambridge International : Cambridge, MD	-	4.852	Jun 2018	5.822	Nov 2018	-		-		-	0.000	10.674	-
Classified Program	MIPR	Classified : Classified	2.382	3.000	Nov 2017	-		-		-		-	Continuing	Continuing	-
Group 1 Unmanned Aerial System (UAS)/ Expeditionary Organic Tactical Airborne ISR Capability Set (EOTACS) Payload Integration	C/IDIQ	Various : Various	0.124	0.355	Mar 2018	0.329	Mar 2019	0.279	Mar 2020	-		0.279	Continuing	Continuing	-
Group 2 UAS Platform/ Payloads Development and Integration	MIPR	Various : Various	1.627	4.126	Nov 2018	5.100	Jan 2019	6.020	Mar 2020	-		6.020	Continuing	Continuing	-
Group 3 UAS Platform/ Payload Development and Integration (OCO)	C/TBD	Various : Various	-	-		5.000	Mar 2019	0.000		5.000	Mar 2020	5.000	Continuing	Continuing	-
Group 4 UAS Platform/ Payloads Development and Integration	C/TBD	Various : Various	5.600	-		6.432	Mar 2019	6.681	Mar 2020	-		6.681	Continuing	Continuing	-
Prior Year Effort	Various	Various : Various	4.122	-		-		-		-		-	0.000	4.122	-
		Subtotal	13.855	18.271		33.824		24.980		5.000		29.980	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / *Unmanned ISR*	Project (Number/Name) S855 / *Unmanned ISR*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SAFC Platform/Payload Integration	MIPR	Various : Various	0.600	0.682	Jan 2018	0.527	Jan 2019	0.600	Jan 2020	-		0.600	Continuing	Continuing	-
Group 2 UAS Platform/ Payload Support	MIPR	Various : Various	0.617	0.201	Feb 2018	0.100	Feb 2019	0.050	Jan 2020	-		0.050	Continuing	Continuing	-
		Subtotal	1.217	0.883		0.627		0.650		-		0.650	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SAFC Sensor Testing, Evaluation and Demonstration	MIPR	Smartronix Inc. : Hollywood, MD	-	2.426	Mar 2018	-		-		-		-	0.000	2.426	-
SAFC Sensor Testing, Evaluation and Demonstration	MIPR	Johns Hopkins University : Baltimore, MD	-	3.723	Dec 2017	0.205	Dec 2018	0.230	Dec 2019	-		0.230	Continuing	Continuing	-
SAFC Sensor Testing, Evaluation and Demonstration	MIPR	Cambridge International : Cambridge, MD	-	6.139	May 2018	7.223	Nov 2018	7.831	Nov 2019	-		7.831	Continuing	Continuing	-
Group 2 UAS Platform/ Payload Test and Evaluation	MIPR	Various : Various	0.825	0.126	Mar 2018	0.496	Feb 2019	1.004	Mar 2020	-		1.004	Continuing	Continuing	-
Group 4 UAS Test and Evaluation	Various	Various : Various Vendors During Integration	0.120	-		0.268	Mar 2019	0.287	Mar 2020	-		0.287	Continuing	Continuing	-
Prior Year	Various	Various : Various	2.374	-		-		-		-		-	0.000	2.374	-
		Subtotal	3.319	12.414		8.192		9.352		-		9.352	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160434BB / *Unmanned ISR*	Project (Number/Name) S855 / *Unmanned ISR*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SAFC Sensor Testing, Evaluation and Demonstration Management	MIPR	Various : Various	1.073	1.401	Mar 2018	1.583	Mar 2019	1.615	Mar 2020	-		1.615	Continuing	Continuing	-
SAFC Heat Coat UAS Anti-Icing Contract Administration	MIPR	Cambridge International : Cambridge, MD	-	0.148	Jun 2018	0.178	Nov 2018	-		-		-	0.000	0.326	-
Group 2 UAS Platform/ Payload Management	C/TBD	Various : Various	0.617	0.459	Jan 2018	0.566	Feb 2019	0.780	Mar 2020	-		0.780	Continuing	Continuing	-
		Subtotal	1.690	2.008		2.327		2.395		-		2.395	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	20.081	33.576		44.970		37.377		5.000		42.377	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*	**Project (Number/Name)** S855 / *Unmanned ISR*

SAFC Schedule

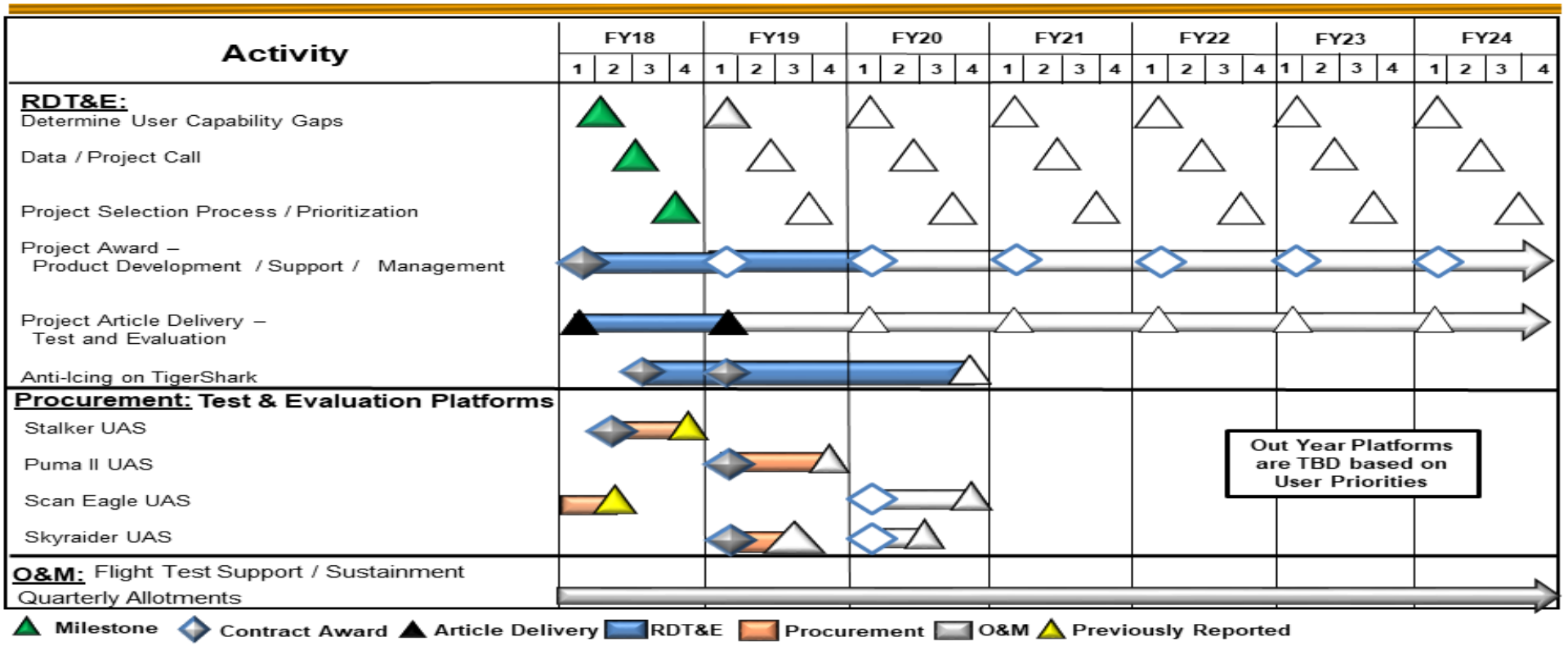


Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*	**Project (Number/Name)** S855 / *Unmanned ISR*

Group 1 UAS/EOTACS Schedule

(Incorporates Group 1 Schedule for FY18-FY19)

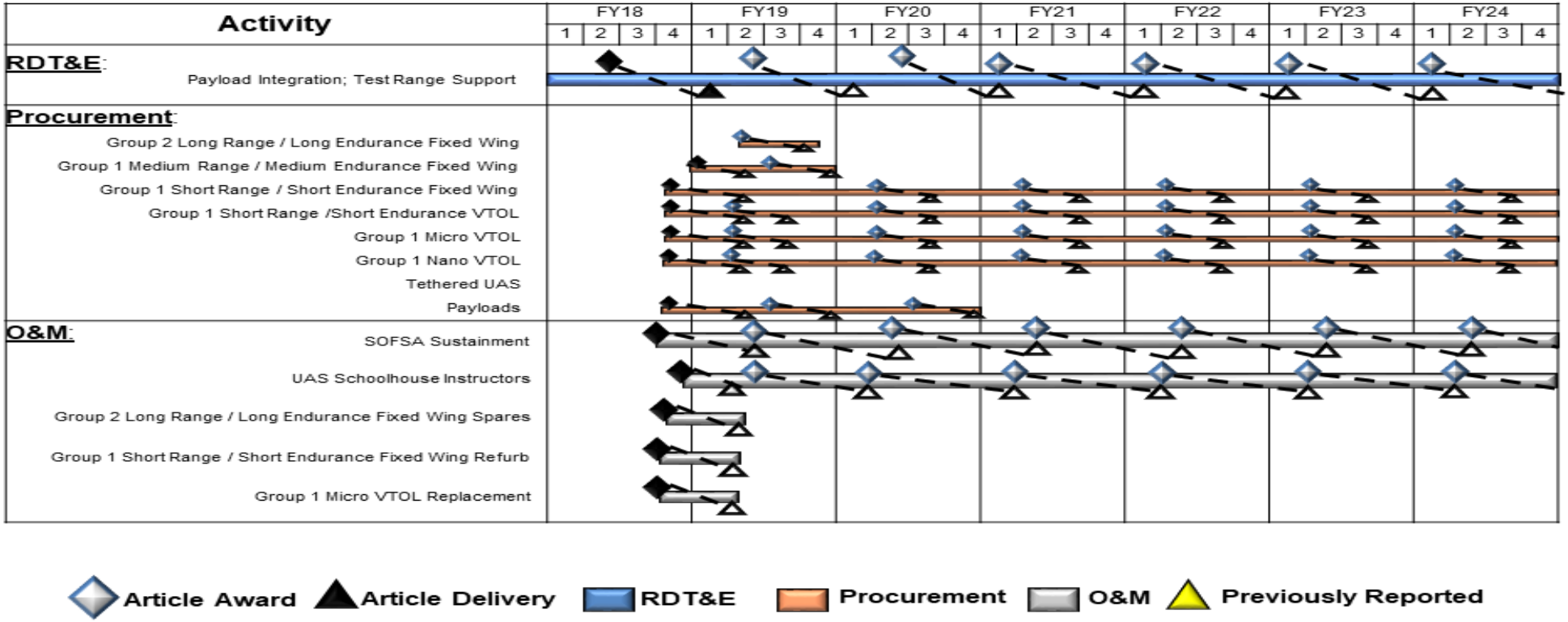


Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*	**Project (Number/Name)** S855 / *Unmanned ISR*

Group 2 (MTUAS) Schedule

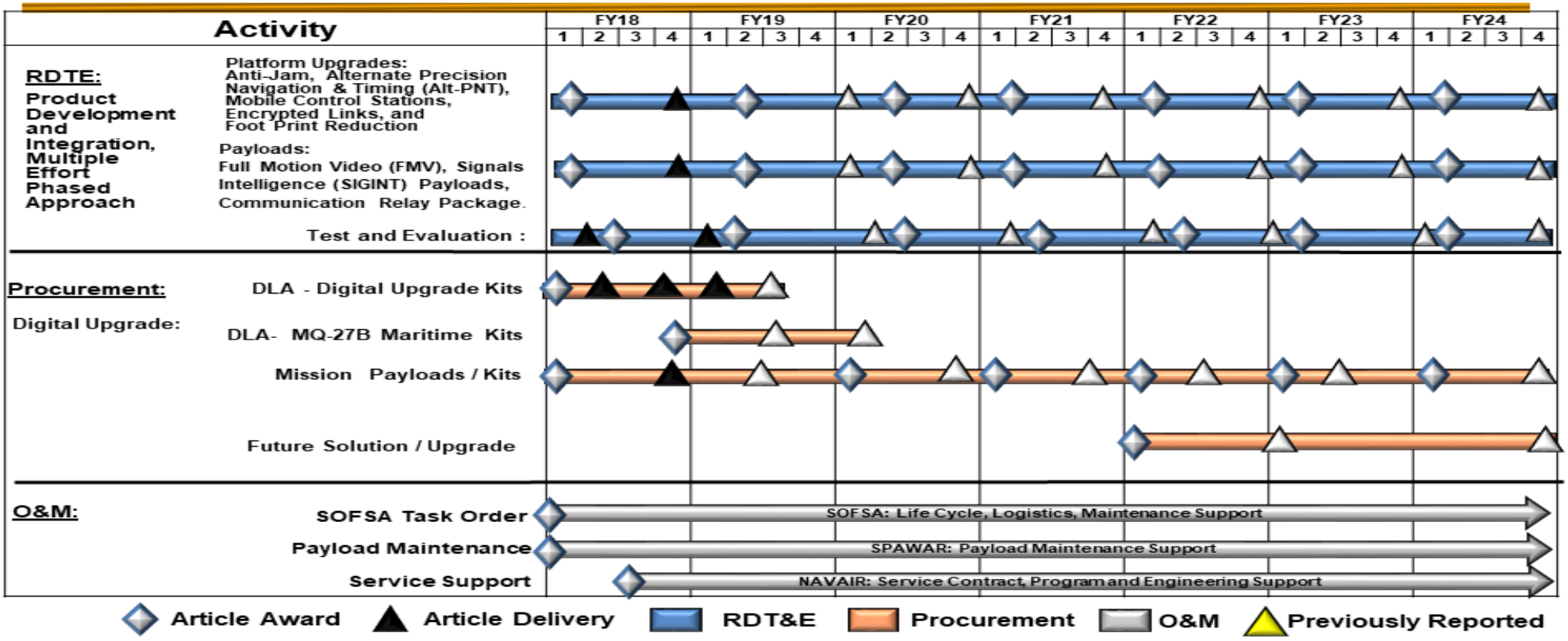


Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*	**Project (Number/Name)** S855 / *Unmanned ISR*

G3UAS Schedule

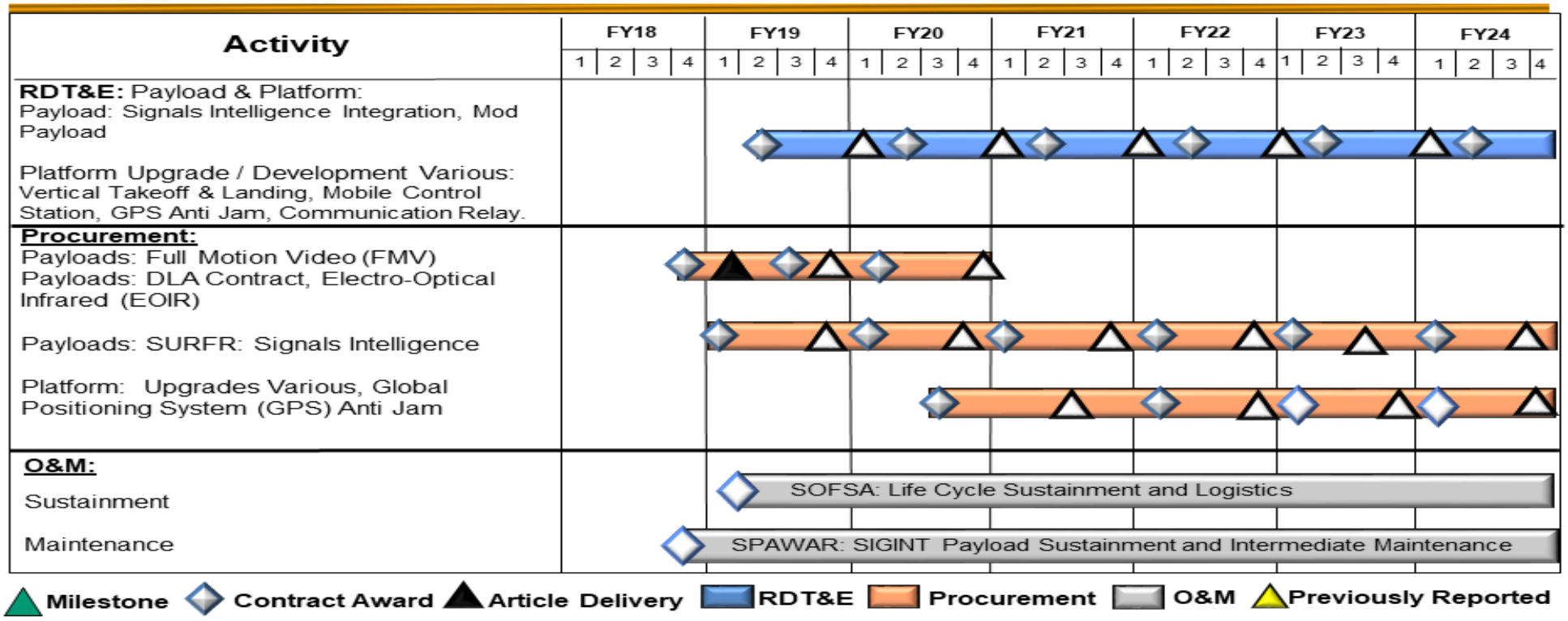


Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*	**Project (Number/Name)** S855 / *Unmanned ISR*

Group IV Unmanned ISR Schedule

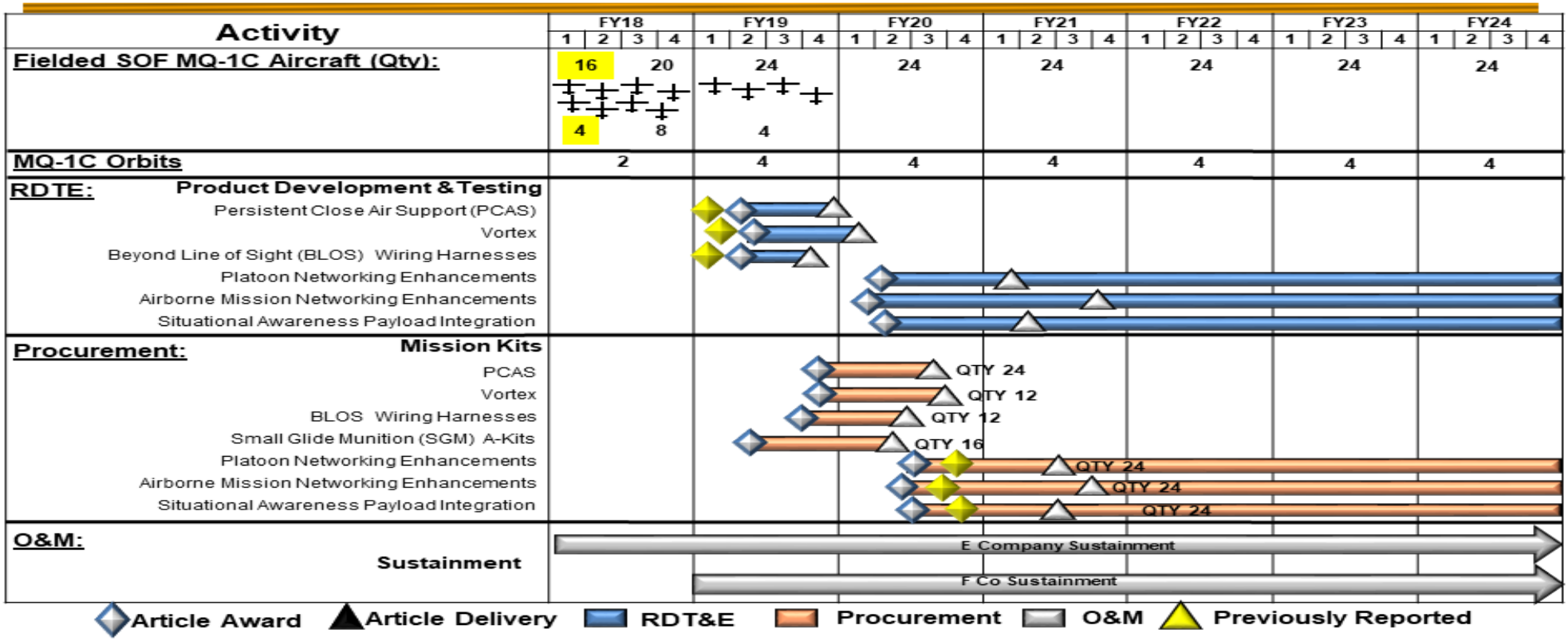


Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160434BB / *Unmanned ISR*	**Project (Number/Name)** S855 / *Unmanned ISR*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SAFC				
Product Development, Support, and Management	1	2018	4	2024
Test and Evaluation	1	2018	4	2024
Anti-Icing Development on TigerShark	3	2018	4	2020
Group 1 Unmanned Aerial System (UAS)/Expeditionary Organic Tactical Airborne ISR Capability Set (EOTACS)				
Payload Integration; Test Range Support	1	2018	4	2024
Group 2 UAS				
Platform/Payload Development and Integration	1	2018	4	2024
Platform/Payload Test & Evaluation	1	2018	4	2024
Group 3 UAS				
Platform/Payload Development and Integration	1	2019	4	2024
Group 4 UAS				
Persistent Close Air Support (PCAS) Integration	2	2019	4	2019
Vortex Integration	2	2019	1	2020
Beyond Line of Sight (BLOS) wiring harness integration	2	2019	4	2019
Platoon Networking Enhancements	2	2020	1	2021
Airborne Mission Networking Enhancements	1	2020	4	2021
Situational Awareness Sensor Integration	2	2020	2	2021

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160480BB / *SOF Tactical Vehicles*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	37.735	2.483	1.846	11.150	-	11.150	9.263	4.191	5.221	4.820	Continuing	Continuing
S910: *SOF Tactical Vehicles*	37.735	2.483	1.846	11.150	-	11.150	9.263	4.191	5.221	4.820	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for the development and testing of a variety of incremental upgrades to Special Operations Forces (SOF) Vehicles and ancillary equipment. Current SOF tactical vehicles are categorized into Light, Medium, Heavy, and Commercial, and include the following: Light Tactical All-Terrain Vehicles (LTATV), Ground Mobility Vehicles (GMV 1.1), Mine Resistant Ambush Protected (MRAP) vehicles, and Non Standard Commercial Vehicles (NSCV). The SOF mission mandates that SOF vehicles remain technologically superior, operate in multiple environments and be able to meet any threat to provide a maximum degree of survivability.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	2.578	1.846	3.551	-	3.551
Current President's Budget	2.483	1.846	11.150	-	11.150
Total Adjustments	-0.095	0.000	7.599	-	7.599
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.095	-			
• Other Adjustments	-	-	7.599	-	7.599

Change Summary Explanation

Funding:

FY 2018: Decrease of -$0.095 million is due to the transfer of funds to Small Business Innovative Research/Small Business Technology Research Transfer programs.

FY 2019: None.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160480BB / *SOF Tactical Vehicles*

FY 2020: Increase of $7.599 million is to incorporate technology insertion into the GMV 1.1 and NSCV programs. Specifically, funding increase in FY20 will allow for the integration and testing of designated Counter Unmanned Aerial Systems (CUAS)/Precision Strike systems on SOF tactical vehicle platforms; Electric GMV 1.1 design to include Engineering Change Proposals (ECPs) and testing; Purpose Built NSCV development from design into testing; and additional Technology Insertion Roadmap (TIR) efforts such as vehicle performance ECPs, armor upgrades, and lightweight vehicle/armor efforts.

Schedule: None.

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160480BB / *SOF Tactical Vehicles*	Project (Number/Name) S910 / *SOF Tactical Vehicles*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S910: *SOF Tactical Vehicles*	37.735	2.483	1.846	11.150	-	11.150	9.263	4.191	5.221	4.820	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Family of Special Operations Vehicles (FSOV) project develops, tests, and evaluates SOF Tactical Vehicles and associated modifications. FSOV engages in annual technology insertion efforts, to include rapid prototyping/fielding efforts targeted at ground vehicle capability enhancements across the mobility, survivability, payload, and durability spectrum. The Special Operations Forces (SOF) mission mandates that SOF vehicles remain technologically superior, operate in multiple environments and be able to meet any threat to provide a maximum degree of survivability. The current family of SOF tactical vehicles include: light mobility vehicles, medium mobility vehicles, non-standard commercial vehicles, and heavy mobility vehicles.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: FSOV	2.483	1.846	11.150	-	11.150
Description: Specific efforts include but are not limited to: GMV 1.1 effort which provides for a medium vehicle variant capable of meeting specific requirements of internal aircraft transport on the C/MH-47, engineering costs related to performance, endurance, safety testing, integration and logistical analysis of product samples, and ECPs associated with the NSCV, GMV 1.1, and the LTATV. These ECPs will address any identified safety, reliability, and performance concerns. Finally, funding will be used to support vehicle signature reduction and survivability improvement/lightweight efforts. ***FY 2019 Plans:*** Continue design/development and integration of ECPs that implement incremental upgrades and improve the design of the LTATV, GMV 1.1, and NSCV. Efforts will include next-generation cards based radio integration design and testing on the GMV 1.1 and NSCV. Complete safety, reliability, performance, and operational testing of multiple variants of NSCV from the new contract. ***FY 2020 Base Plans:*** Continues design/development and integration of ECPs that implement incremental upgrades and improve the design of the LTATV, GMV1.1, and NSCV. Continues efforts to design and test next generation hand-held & and manpack radio (replaces card based radios) integration on the GMV1.1 and NSCV. Designs and tests an electric version of the GMV1.1 allowing a reduced audible signature on future missions with an additional goal of reducing the logistical footprint (less moving parts, no fuel and oils required, etc.). Develops a purpose built NSCV and move the design into testing. This effort will reduce future lifecycle costs and improve capability for SOF operators. Furthermore, FSOV will integrate and test designated Counter-UAS/Precision Strike systems on					

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160480BB / *SOF Tactical Vehicles*	**Project (Number/Name)** S910 / *SOF Tactical Vehicles*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
vehicle platforms to ensure performance of both systems with minimal adverse impacts. Additional technology insertion efforts will be addressed such as ECPs, armor upgrades, and lightweight vehicle/armor efforts. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $9.304M is due to new technology insertion into the GMV 1.1 and NSCV programs. Specifically, funding increase in FY20 will allow for the integration and testing of designated Counter-UAS/Precision Strike systems onto SOF tactical vehicles; Hybrid/Electric GMV 1.1 design to include ECPs and testing; Purpose Built NSCV development from design into testing; and additional Technology Insertion Roadmap (TIR) efforts such as vehicle performance ECPs, armor upgrades, and lightweight vehicle/armor efforts.					
Accomplishments/Planned Programs Subtotals	2.483	1.846	11.150	-	11.150

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0204TACVEH: *Tactical Vehicles*	110.271	145.499	77.832	2.990	80.822	42.496	33.566	34.159	34.845	Continuing	Continuing

Remarks

D. Acquisition Strategy

Apply SOF-Peculiar modifications to service common or Commercial Off The Shelf (COTS) vehicles whenever possible. Otherwise, incorporate purpose-built, Non-Developmental Item, or modified COTS vehicles if/when service solution is unavailable.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160480BB / *SOF Tactical Vehicles*	**Project (Number/Name)** S910 / *SOF Tactical Vehicles*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FSOV GMV 1.1 Capability Enhancements / ECP Development	Various	Various : Various	12.285	0.833	Sep 2018	0.336	Feb 2019	2.000	Mar 2020	-		2.000	Continuing	Continuing	-
FSOV NSCV Capability Enhancements / ECP Development	Various	Various : Various	0.867	0.289	Jul 2018	0.335	Apr 2019	3.250	Jan 2020	-		3.250	Continuing	Continuing	-
FSOV LTATV Capability Enhancements / ECP Development	Various	Various : Various	0.920	-		-		0.500	Nov 2019	-		0.500	Continuing	Continuing	-
FSOV GMV 1.1 and NSCV Survivability Enhancement/ Improvement Efforts	Various	Various : Various	0.033	0.938	Nov 2017	0.200	Jun 2019	1.250	Nov 2019	-		1.250	Continuing	Continuing	-
FSOV GMV 1.1 Capability Enhancements / ECP Development Overseas Contigency Operations (OCO)	Various	Various : Various	-	-		0.725	Jun 2019	-		-		-	0.000	0.725	-
Prior Year Funding	Various	Various : Various	0.385	-		-		-		-		-	0.000	0.385	-
		Subtotal	14.490	2.060		1.596		7.000		-		7.000	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Funding	Various	Various : Various	5.522	-		-		-		-		-	0.000	5.522	-
		Subtotal	5.522	-		-		-		-		-	0.000	5.522	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GMV 1.1 Test and Evaluation Validation	Various	Various : Various	0.339	-		-		2.000	Jun 2020	-		2.000	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160480BB / *SOF Tactical Vehicles*	Project (Number/Name) S910 / *SOF Tactical Vehicles*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Efforts (Automotive, C4I, Ballistics, Operator Events)															
NSCV Test and Evaluation Validation Efforts (Automotive, C4I, Ballistics, Operator Events)	Various	Various : Various	1.695	0.423	Mar 2018	0.250	Dec 2018	2.000	Jun 2020	-		2.000	Continuing	Continuing	-
LTATV Test and Evaluation Efforts	C/Various	Various : Various	-	-		-		0.150	Jun 2020	-		0.150	Continuing	Continuing	-
Prior Year Funding	Various	Various : Various	15.689	-		-		-		-		-	0.000	15.689	-
		Subtotal	17.723	0.423		0.250		4.150		-		4.150	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	37.735	2.483		1.846		11.150		-		11.150	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160480BB / *SOF Tactical Vehicles*	**Project (Number/Name)** S910 / *SOF Tactical Vehicles*

FSOV Schedule

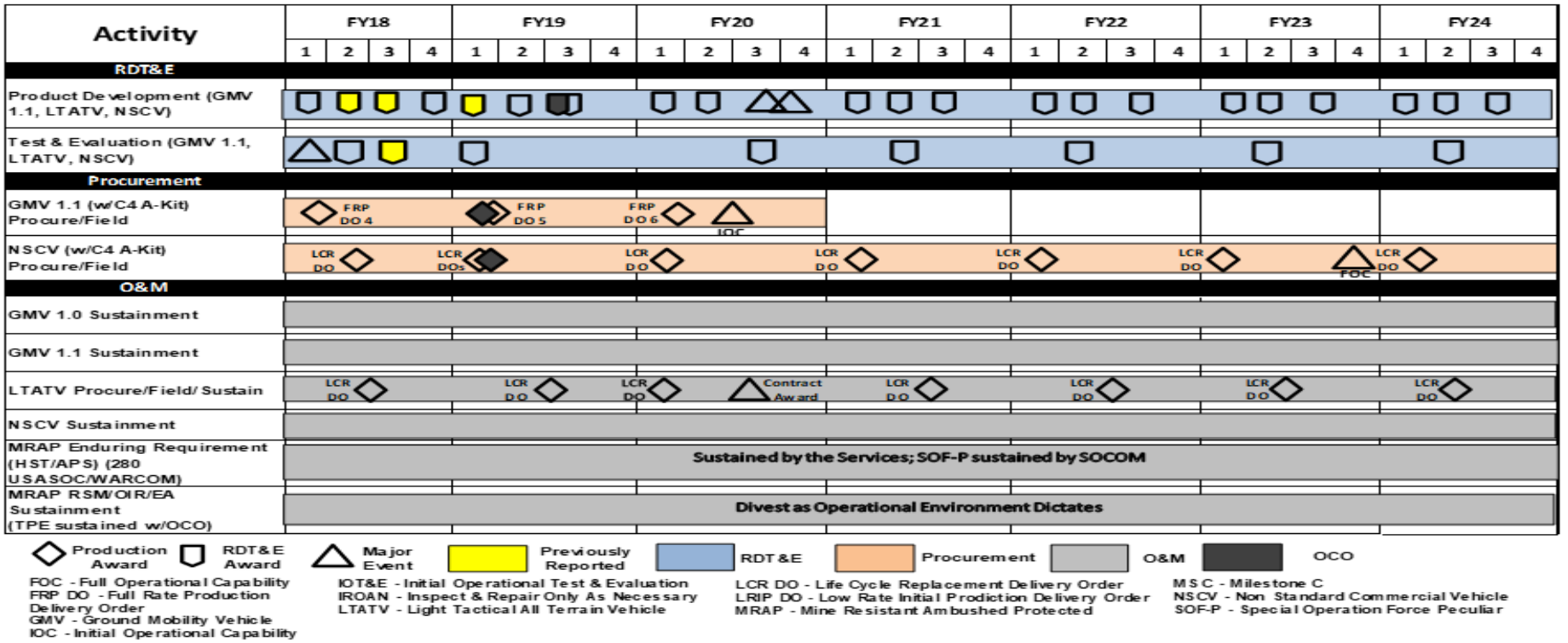


Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160480BB / *SOF Tactical Vehicles*	**Project (Number/Name)** S910 / *SOF Tactical Vehicles*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Family of Special Operations Vehicles (FSOV)				
Product Development (GMV 1.1, LTATV, NSCV)	1	2018	4	2024
Test & Evaluation (GMV 1.1, LTATV, NSCV)	1	2018	4	2024

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	402.384	66.280	42.471	72.626	-	72.626	61.921	54.438	73.393	78.581	Continuing	Continuing
S0417: *Underwater Systems*	369.317	58.229	26.897	45.205	-	45.205	50.475	48.369	64.259	69.234	Continuing	Continuing
S1684: *Surface Craft*	33.067	8.051	15.574	27.421	-	27.421	11.446	6.069	9.134	9.347	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for engineering and manufacturing development (EMD) of Special Operations Forces (SOF) Surface and Undersea Mobility platforms. This program element also provides for pre-acquisition activities to quickly respond to new requirements for SOF surface and undersea mobility, looking at multiple alternatives to include cross-platform technical solutions, service-common solutions, Commercial-Off-The-Shelf technologies, and new development efforts. Middle-Tier Acquisition (2016 NDAA, Section 804) to accommodate rapid prototyping, may be utilized.

The Underwater Systems project provides for EMD of combat submersibles, SOF operator diving systems, underwater support systems, and underwater equipment. This project also provides for pre-acquisition activities (material solutions analysis, advanced component, prototype development, and exploitation of emerging technology opportunities to deliver enhanced capabilities) to respond to emergent requirements. These submersibles, equipment, and diving systems are used by SOF in the conduct of infiltration/extraction, personnel/material recovery, hydrographic/inland reconnaissance, beach obstacle clearance, underwater ship attack, and other missions. The capabilities of the submersible systems, diving systems, and unique equipment provide small, highly trained forces the ability to successfully engage the enemy and conduct clandestine operations associated with SOF maritime missions.

The Surface Craft project provides for EMD of medium and heavy surface combatant craft, combatant craft mission equipment, and pre-planned product improvement and technology insertion engineering changes to meet the unique requirements of SOF. This project element also provides for pre-acquisition activities (materiel solutions analysis, advanced component development and prototypes) to quickly respond to new requirements for maritime craft and subsystems. The craft capabilities and unique equipment provide small, highly trained forces the ability to successfully engage the enemy and conduct operations associated with SOF maritime missions.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	42.315	42.471	31.865	-	31.865
Current President's Budget	66.280	42.471	72.626	-	72.626
Total Adjustments	23.965	0.000	40.761	-	40.761
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	14.100	-			
• Congressional Directed Transfers	12.800	-			
• Reprogrammings	-0.402	-			
• SBIR/STTR Transfer	-2.533	-			
• Other Adjustments	-	-	40.761	-	40.761

Change Summary Explanation

Funding:

FY2018: Net increase of $23.965 million is due to Congressional Add of $14.100 million for the Dry Combat Submersible Program (DCS) depressurization pump, signature management, modeling and simulation, and submarine interoperability risk mitigation efforts, an increase of $12.800 million for the congressional requested transfer into DCS for the completion of manufacturing and acceptance testing of DCS 1 vessel and development of Mid-Water Column Lock-In/Lock-out (MWC LI/LO). A decrease of -$2.533 million to Small Business Innovation Research/Small Business Technology Transfer Programs, and a decrease of -$0.402 million for higher command priorities.

FY 2019: None.

FY2020: Net Increase of $40.761 million due to an increase of $17.163 million to commence the Undersea Craft Mission Equipment (UCME), which supports Technology Insertion Roadmaps including technology development to support Assured Access and undersea clandestine insertion. An increase of $5.350 million to support active ride control and digital radar for Combatant Craft Mission Equipment (CCME), an increase of $13.537 million to continue the development, design, and integration of Maritime Precision Engagement (MPE), an increase of $2.986 million for development of DCS Next, and an increase of $1.725 million for development across undersea and surface programs.

Schedule: None.

Technical: None.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / *Maritime Systems*	Project (Number/Name) S0417 / *Underwater Systems*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S0417: *Underwater Systems*	369.317	58.229	26.897	45.205	-	45.205	50.475	48.369	64.259	69.234	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for engineering and manufacturing development of combat underwater submersibles, Special Operations Forces (SOF) operator diving systems, underwater support systems, and underwater equipment. This project also provides for pre-acquisition activities (materiel solutions analysis, advanced component development and prototypes) to respond to emergent requirements. Middle-Tier acquisitions to accommodate rapid prototyping may be utilized. These submersibles, equipment, and diving systems are used by SOF in the conduct of infiltration/extraction, personnel/material recovery, hydrographic/inland reconnaissance, beach obstacle clearance, underwater ship attack, and other missions. The capabilities of the submersible systems, diving systems, and unique equipment provides small, highly trained forces the ability to successfully engage the enemy and conduct clandestine operations associated with SOF maritime missions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Shallow Water Combat Submersible (SWCS)	1.378	1.247	1.395
Description: This sub-project provides for the design, development, test, manufacturing and sustainment of one Engineering Development Model (EDM) and ten production units to replace the legacy MK 8 MOD 1 Seal Delivery Vehicle (SDV) system. SWCS is a free-flooding combat submersible mobility platform suitable for transporting and deploying SOF and their payloads for a variety of SOF missions. SWCS will be deployable from a Dry Deck Shelter (DDS), surface ships, and land. The SWCS system includes the SWCS vehicle and SWCS support Equipment, comprised of Mission Support Equipment (MSE), Pack-Up Kit (PUK), and Transportation and Handling (T&H). It also includes integration efforts with the current Dry Deck Shelter (DDS) and development of product improvements accomplished throughout the lifecycle of the system. ***FY 2019 Plans:*** Continue pre-planned product improvements (P3I) and complete Initial Operation Test and Evaluation (IOT&E) and commence Follow-on Operational Test & Evaluation (FOT&E). P3I enhancements include, but are not limited to, Chase Boat Situational Awareness (CBSA), diver thermal, and Hydro-Acoustic Information Link (HAIL) II. ***FY 2020 Plans:*** Continues P3I. P3I enhancements include, but are not limited to, Acoustic and Radio Frequency indicators & warning capabilities, Electro-Optical (EO)/Infrared (IR) capability, and Self recovery. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.148 million is for additional enhancements.			
Title: Dry Combat Submersible (DCS)	40.309	15.024	19.209

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S0417 / *Underwater Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Description: This sub-project provides for the advanced development, engineering, manufacturing, and testing efforts for a surface-launched, dry, diver lock-in/lock-out vessel capable of inserting and extracting SOF and/or payloads into denied areas. USSOCOM awarded an Engineering and Manufacturing Development (EMD) contract in FY 2016 to produce one production representative vessel, with options to produce two additional vessels. USSOCOM is testing one submersible prototype to validate test methodologies, commercial classification, and SOCOM safety certification processes and will continue to use the prototype to evaluate capability enhancing technologies and reduce risk in the DCS program. This project includes funding for enhanced warfighter capabilities such as Mid-Water Column Lock-In/Lock-Out, depressurization pump, and submarine interoperability. Funding begins in FY 2020 for an EMD effort for submarine interoperable DCS-Next vessel. This program was increased by FY 2018 congressional add. ***FY 2019 Plans:*** Continue the incorporation of engineering changes to increase the operational capability of DCS. Complete government acceptance testing and initiate developmental testing and operational testing on DCS #1. ***FY 2020 Plans:*** Continues the incorporation of engineering changes to increase the operational capability of DCS. Complete operational testing on DCS #1. Begin DCS-Next EMD efforts. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $4.185 million is due to DCS-Next development ($2.986 million) and execution of DCS #1 operational testing ($1.199 million).			
Title: Dry Deck Shelter (DDS) Modernization	12.800	8.564	5.278
Description: This sub-project provides for the pre-planned product improvements, testing, and integration of specialized underwater systems to meet the unique requirements of SOF, and compatibility with the submarine fleet. The current DDS is a certified diving system which attaches to modified host submarines that provides for insertion of SOF forces and platforms. Funding supports product improvements to the current DDS, as well as associated diver equipment for in-service submarine support systems, unmanned underwater vehicles, and follow on development efforts for future SOF payloads. ***FY 2019 Plans:*** Continue product improvements necessary to extend useful life of the DDS, transitions from Submarine Ship Guided Missile Nuclear (SSGN) to Virginia Class host platform, and increases capacity to carry larger payloads. ***FY 2020 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S0417 / *Underwater Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Continues product improvements necessary to extend useful life of the DDS, transitions from SSGN to Virginia Class host platform, and increases capacity to carry larger payloads. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Decrease of $3.286 million is a result of completing the development of the Modernized DDS first article.			
Title: SOF Combat Diving ***Description:*** This sub-project is a Middle Tier of Acquisition designated program which provides for the development, testing, and rapid fielding and prototyping of SOF peculiar diving equipment providing the SOF combat diver the ability to engage the enemy and conduct operations. SOF Combat Diving will support the SDV, SWCS, and DCS with the conduct of infiltration/extraction, material recovery, underwater ship attack, beach clearance, and other missions. Technologies include, but are not limited to, commercial and developmental life support, maneuverability and propulsion, diver navigational accuracy and situation awareness, environmental protection, and communications between dive teams as well as between divers and external vessels/craft. ***FY 2019 Plans:*** Continue development, to include test and evaluation for environmental protection, navigation, communication, and propulsion. ***FY 2020 Plans:*** Continues development, to include test and evaluation for environmental protection, navigation, communication, and propulsion. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.098 million is due to miscellaneous adjustments.	3.742	2.062	2.160
Title: Undersea Craft Mission Equipment (UCME) ***Description:*** UCME provides a rapid response capability to support SOF underwater craft and diver systems, subsystems, and their emerging requirements. UCME provides technology refresh efforts to correct system deficiencies, improve asset life, and enhance mission capability to leverage and exploit emerging technologies within the maritime Special Operations Forces undersea capability portfolio. ***FY 2020 Plans:*** Begin development of undersea survivability enhancements; underwater and maritime domain communications; enhanced situational awareness and Intelligence, Surveillance, and Reconnaissance (ISR); unique power and energy capabilities; other capability enhancements and enabling technologies for assured access and Undersea Clandestine Insertion (UCI), which supports the National Defense Strategy (NDS). Throughout FY2019 PEO-M will be identifying appropriate rapid acquisition pathways to include: streamlined Federal Acquisition Regulation (FAR) contracting with existing or planned Indefinite Delivery/ Indefinite Quantity (IDIQ), Basic Ordering Agreement, University Affiliated Research Center (UARC), and Federally Funded	0.000	-	17.163

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S0417 / *Underwater Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Research and Development Centers (FFRDC) contracts; and use Non-FAR Based Acquisition Authorities and Other Transaction Authority agreements to allow immediate execution of FY20 funds when they become available. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $17.163 million is to support undersea Technology Insertion Roadmaps and development of undersea survivability enhancements; underwater and maritime domain communications; enhanced situational awareness and ISR; unique power and energy capabilities; other capability enhancements and enabling technologies for assured access and UCI, which supports the National Defense Strategy (NDS).			
Accomplishments/Planned Programs Subtotals	58.229	26.897	45.205

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0210US: *Underwater Systems*	78.831	132.023	58.991	-	58.991	25.897	19.245	15.496	15.844	Continuing	Continuing

Remarks

D. Acquisition Strategy

• Middle-Tier Acquisition to accommodate rapid prototyping, may be utilized.

• SWCS used full and open competition with a down select to a single contractor. The full spectrum of contracting activities are being utilized for any integration and subsystem requirements, using existing contracts where appropriate, government agencies, and new contracts as necessary.

• DCS used full and open competition, resulting in the selection of a single prime contractor. A Fixed Price Incentive Firm Target contract for a production representative system was awarded in FY 2016 with options to procure one vessel in FY 2018 and one in FY 2019. DCS-Next is planned to be a full and open competition beginning in FY 2020 with market research.

• The DDS is currently in sustainment through a maintenance and service contract which was competitively sourced, and awarded for a 5-year period. The modernization and engineering/change efforts for the six DDS in inventory are executed utilizing the existing services contract.

• SOF Combat Diving is designated a Middle-Tier acquisition program which supports rapid prototyping and is executed using existing contracts, government agencies, and new contracts competitively selected as appropriate.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S0417 / *Underwater Systems*

• UCME will use streamlined FAR contracting with existing or planned IDIQ, Blanket Order Agreement (BOA), UARC, and FFRDC contracts and use Non-FAR Based Acquisition Authorities and Other Transaction Authority (OTA) agreements, where appropriate. UCME focuses on developing specific technology for maturity, marinization and compatibility for transition to SOF undersea craft. Integration and procurement are managed by the individual undersea craft Programs.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / *Maritime Systems*	Project (Number/Name) S0417 / *Underwater Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Shallow Water Combat Submersible (SWCS) Engineering Changes	C/Various	Various : Various	-	-		1.047	Feb 2019	1.191	Feb 2020	-		1.191	Continuing	Continuing	-
Dry Combat Submersible (DCS) Technologies Government Furnished Equipment	C/Various	Various : Various	37.753	3.000	Nov 2017	0.100	Nov 2018	-		-		-	Continuing	Continuing	-
DCS Engineering & Manufacturing Development	C/FPIF	Lockheed Martin : Riviera Beach, FL	52.861	12.997	Nov 2017	3.107	Dec 2018	-		-		-	0.000	68.965	-
DCS Enhancements / P3I Changes	C/Various	Various : Various	3.135	6.283	Mar 2018	1.998	Nov 2018	4.589	Nov 2019	-		4.589	Continuing	Continuing	-
DCS Depressurization Pump/Signature Management/Modeling and Simulation/Risk Mitigation (Congressional add)	C/Various	Various : Various	-	14.100	Mar 2018	-		-		-		-	0.000	14.100	-
DCS Next	C/Various	Various : Various	-	-		-		2.986	Feb 2020	-		2.986	Continuing	Continuing	-
Dry Deck Shelter (DDS) Modernization	C/CPFF	Oceaneering International Inc. Marine Services Division : Chesapeake, VA	14.549	12.450	Jan 2018	8.242	Jan 2019	4.950	Jan 2020	-		4.950	Continuing	Continuing	-
SOF Combat Diving-Unique Diving Technologies	Various	Various : Various	1.870	3.072	Nov 2017	1.379	Nov 2018	1.464	Nov 2019	-		1.464	Continuing	Continuing	-
Undersea Craft Mission Equipment (UCME) Survivability, Navigation, C4ISR/SA, Power & Energy enhancements and other assured access technologies	C/Various	Various : Various	-	-		-		16.360	Mar 2020	-		16.360	Continuing	Continuing	-
Prior Year Funding	Various	Various : Various	202.681	-		-		-		-		-	0.000	202.681	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / *Maritime Systems*	Project (Number/Name) S0417 / *Underwater Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	312.849	51.902		15.873		31.540		-		31.540	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Funding	Various	Various : Various	9.094	-		-		-		-		-	0.000	9.094	-
		Subtotal	9.094	-		-		-		-		-	0.000	9.094	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SWCS	Various	COM OPTEVFOR / JHU-APL : Norfolk, VA / Laurel, MD	1.814	1.378	Nov 2017	0.200	Nov 2018	0.204	Nov 2019	-		0.204	Continuing	Continuing	-
DCS	C/Various	NAVSEA / CRANE : Crane, IN	10.306	1.525	Nov 2017	7.448	Nov 2018	9.254	Nov 2019	-		9.254	Continuing	Continuing	-
SOF Combat Diving	Various	Various : Various	0.630	0.500	Jun 2018	0.510	Mar 2019	0.520	Oct 2019	-		0.520	Continuing	Continuing	-
UCME	C/Various	Various : Various	-	-		-		0.275	Jun 2020	-		0.275	Continuing	Continuing	-
Prior Year Funding	Various	Various : Various	9.320	-		-		-		-		-	0.000	9.320	-
		Subtotal	22.070	3.403		8.158		10.253		-		10.253	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DCS	Various	Booz Allen Hamilton : Tampa, FL	14.644	2.404	Nov 2017	2.371	Apr 2019	2.380	Apr 2020	-		2.380	Continuing	Continuing	-
DDS	Various	NAVSEA : Washington, DC	1.329	0.350	Jan 2018	0.322	Jan 2019	0.328	Jan 2020	-		0.328	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / *Maritime Systems*	Project (Number/Name) S0417 / *Underwater Systems*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
UCME	C/Various	Various : Various	-	-		-		0.528	Apr 2020	-		0.528	Continuing	Continuing	-
SOF Combat Diving	C/Various	Booz Allen Hamilton : Tampa, FL	-	0.170	Dec 2017	0.173	Dec 2018	0.176	Dec 2019	-		0.176	Continuing	Continuing	-
Prior Year Funding	Various	Various : Various	9.331	-		-		-		-		-	0.000	9.331	-
		Subtotal	25.304	2.924		2.866		3.412		-		3.412	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	369.317	58.229		26.897		45.205		-		45.205	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S0417 / *Underwater Systems*

Shallow Water Combat Submersible Schedule

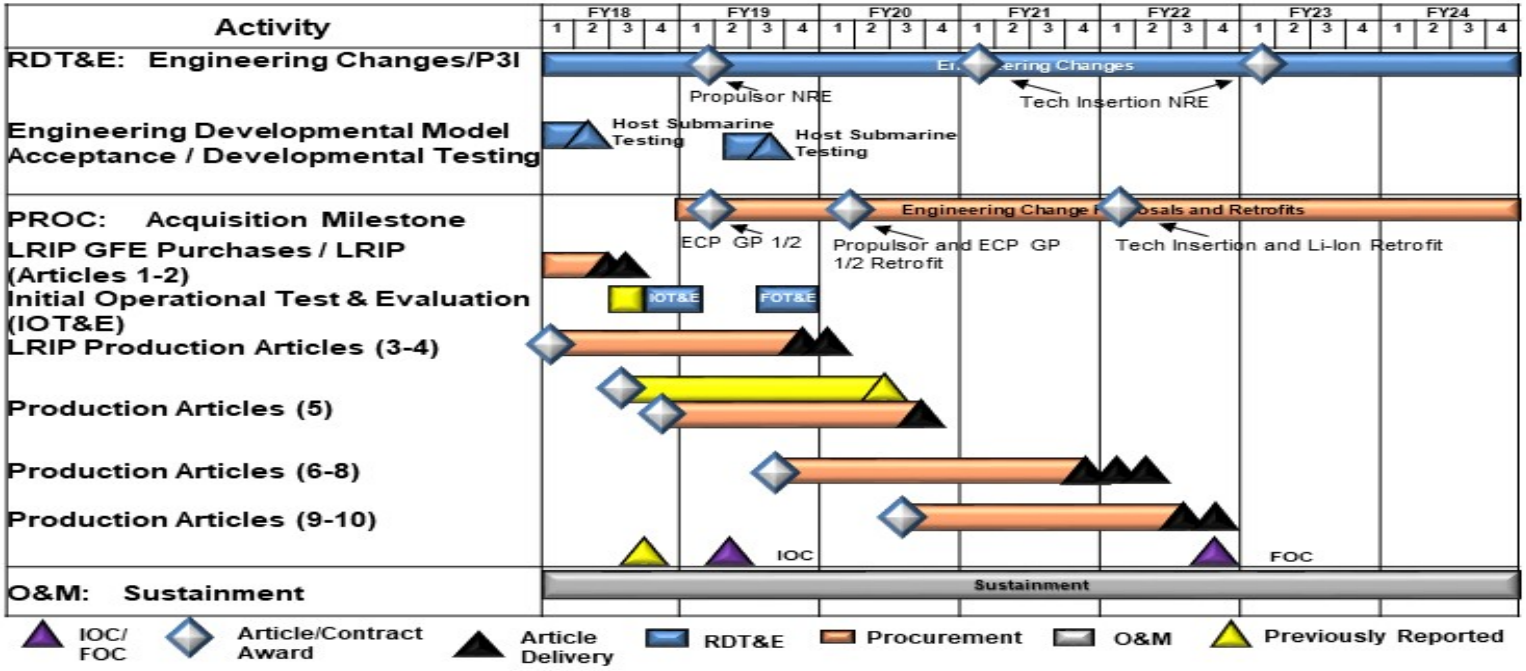


Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S0417 / *Underwater Systems*

Dry Combat Submersible

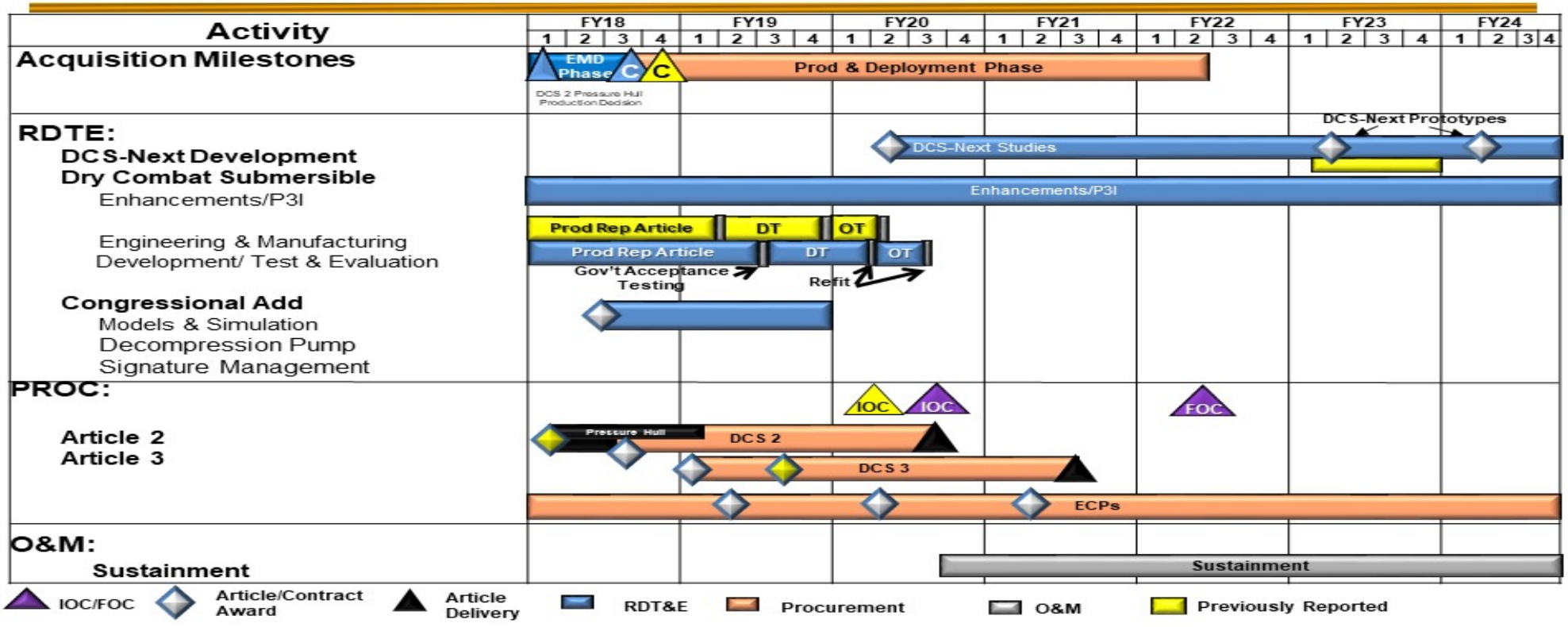


Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S0417 / *Underwater Systems*

SOF Combat Diving Schedule

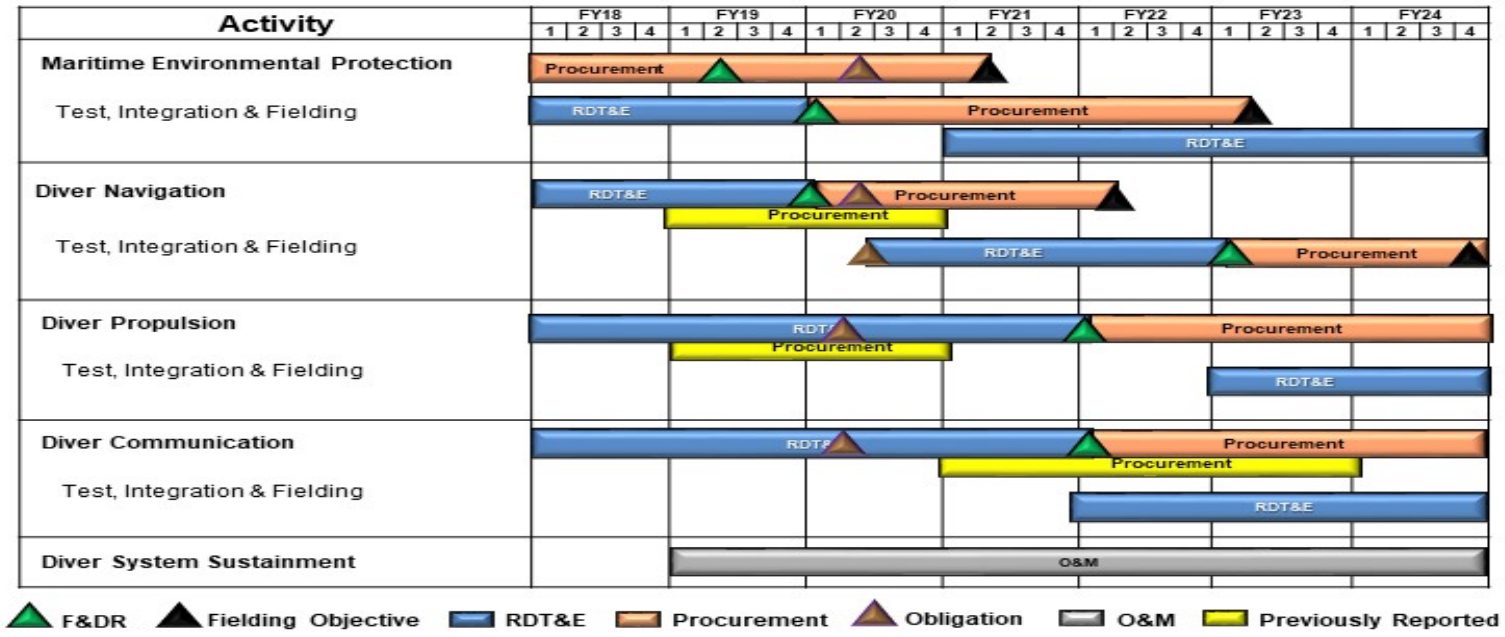


Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S0417 / *Underwater Systems*

Dry Deck Shelter Schedule

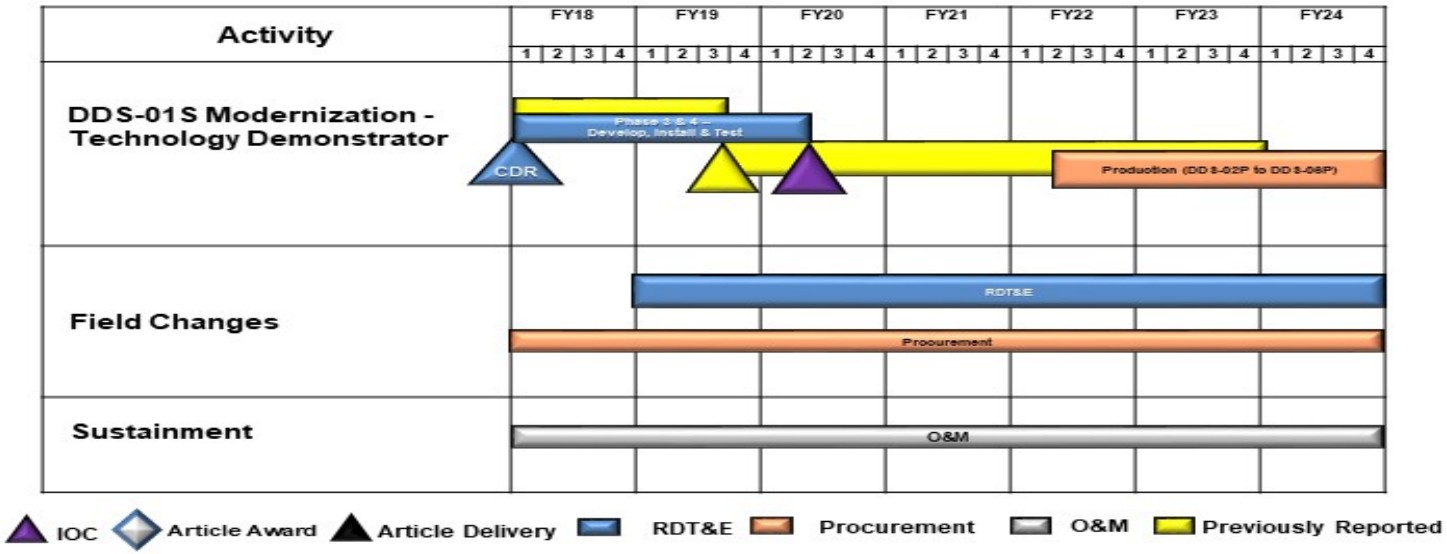
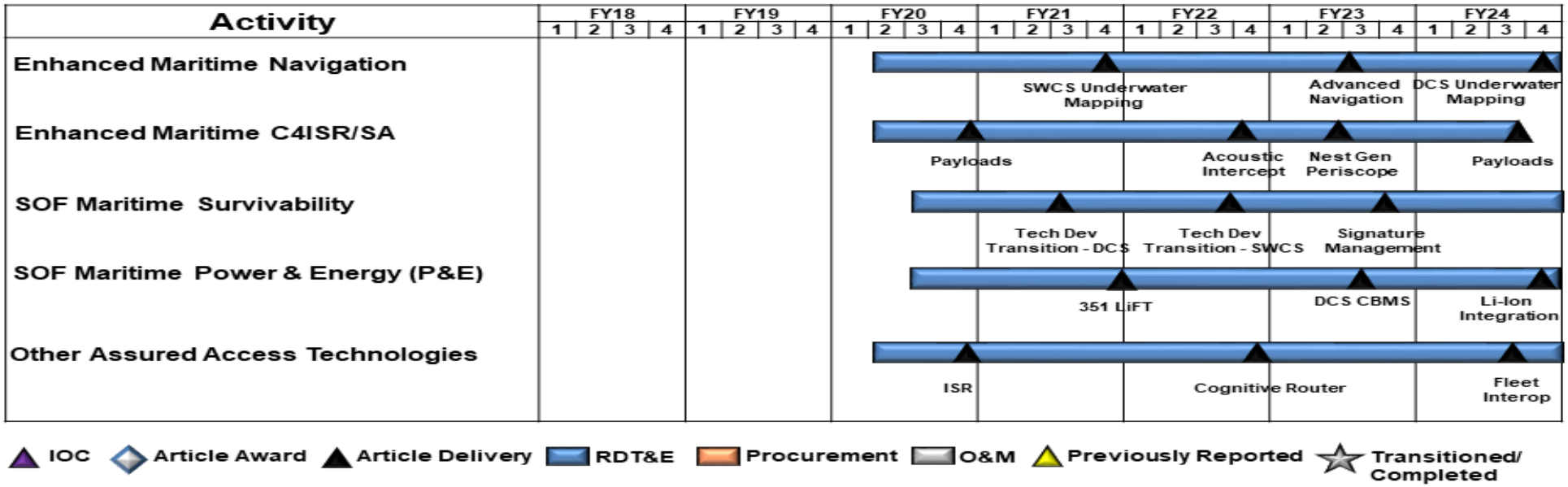


Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S0417 / *Underwater Systems*

UCME Schedule



NOTE: ALL UCME Procurements will be accomplished in program lines

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S0417 / *Underwater Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Shallow Water Combat Submersible				
Enhancements/ P3I	1	2018	4	2024
Engineering Development Model Acceptance	1	2018	2	2018
Developmental Test	2	2019	3	2019
Dry Combat Submersibles				
Engineering and Manufacturing Development Phase	1	2018	3	2018
Milestone C	3	2018	3	2018
DCS-Next	2	2020	4	2024
Enhancements/ P3I	1	2018	4	2024
Production Representative Article	1	2018	2	2019
Developmental Test and Evaluation	2	2019	1	2020
Operational Test and Evaluation	1	2020	3	2020
Dry Deck Shelter Modernization				
Phase 3 & 4 Development	1	2018	2	2020
Critical Design Review	1	2018	1	2018
Field Changes	1	2019	4	2024
SOF Combat Diving				
Maritime Environmental Protection Rapid Prototyping, Test, and Integration	1	2018	4	2024
Diver Navigation Rapid Prototyping, Test, and Integration	1	2018	1	2023
Diver Propulsion Rapid Prototyping, Test, and Integration	1	2018	4	2024
Diver Communication Rapid Prototyping, Test, and Integration	1	2018	4	2024
Maritime Technology Transition & Exploitation (MTTE)				
Enhanced Maritime Navigation	2	2020	4	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S0417 / *Underwater Systems*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Enhanced Maritime C4ISR/SA	2	2020	3	2024
SOF Maritime Survivability	3	2020	4	2024
SOF Maritime Power & Energy (P&E)	3	2020	4	2024
Other Assured Access Technologies	2	2020	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / *Maritime Systems*	Project (Number/Name) S1684 / *Surface Craft*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
S1684: *Surface Craft*	33.067	8.051	15.574	27.421	-	27.421	11.446	6.069	9.134	9.347	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for engineering and manufacturing development of medium and heavy surface combatant craft, combatant craft mission equipment, and pre-planned product improvement (P3I) and technology insertion engineering changes to meet the unique requirements of Special Operations Forces (SOF). This project also provides for pre-acquisition activities (materiel solutions analysis, advanced component development and prototypes) to quickly respond to new requirements for maritime craft and subsystems Middle-Tier acquisition to accommodate rapid prototyping, may be utilized. The craft capabilities and unique equipment provide small, highly trained forces the ability to successfully engage the enemy and conduct operations associated with SOF maritime missions.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020
Title: Combatant Craft Medium (CCM) Mk 1	2.749	0.788	2.917
Description: This sub-project is a semi-enclosed multi-mission combatant craft for platoon-size maritime mobility in maritime denied environments. It is multi-mission capable, including Maritime Interdiction, Insert / Extract, and Visit, Board, Search, and Seizure (VBSS) Operations. CCM is Naval Special Warfare's (NSW) craft-of-choice for long-range, high-payload SOF mobility operations in denied environments up to high threat. CCM has NSW's best Iron Triangle: 40 knot (kt) speed; 4 crew + 19 passengers (pax) / 10,000 pound (lb) payload; and 600 nautical miles (nm) range. CCM Mk 1 payload capacity enables inclusion of shock mitigating seats, which is critical for ride quality, operator tactical readiness, and operator health. At 60 feet long, CCM is C-17 / C5 transportable and can launch/recover by well deck or shore based trailer.			
FY 2019 Plans: Continue integration of Combatant Craft Forward Looking Infrared (CCFLIR2), Tactical Operations Center Intercommunications System (TOCNET) Intercommunications System and Joint Threat Warning System (JTWS). Begins integration of Threat Awareness System (TAS).			
FY 2020 Plans: Continues integration of TAS. Begin survivability enhancements, MK 50 integration, and Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance, and Reconnaissance (C5ISR) upgrades.			
FY 2019 to FY 2020 Increase/Decrease Statement: Increase of $2.129 million was transferred to more accurately reflect execution plan and continue integration of TAS.			
Title: Combatant Craft Heavy (CCH)	1.260	0.885	3.956
Description: This sub-project represents a family of solutions that provides platoon-size maritime surface mobility. The current CCH is the Sea, Air, Land Insertion, Observation, and Neutralization (SEALION) craft. SEALION is a fully-enclosed, climate-			

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S1684 / *Surface Craft*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020
controlled, semi-submersible craft that operates in denied environments up to high-threat. SEALION is NSW's most versatile and survivable combatant craft and the craft-of-choice for sensitive maritime intelligence, surveillance, and reconnaissance missions. Iron Triangle: 40 kt speed; 7 crew + 12 pax / 3,300 lb payload; and 400 nm range. SEALION payload capacity enables inclusion of shock mitigating seats, which is critical for ride quality, operator tactical readiness, and operator health. At 77+ feet long, SEALION is C-17/C-5 transportable and can launch/recover by well deck or shore based mobile travel lift or crane. ***FY 2019 Plans:*** Complete CCFLIR2 integration, continues development and integration of upgraded satellite communication (SATCOM) antennas, development of CCH MK2, and integration of TAS. ***FY 2020 Plans:*** Continues development and integration of upgraded SATCOM antennas and begin design and development of tech data package for CCH MK2. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $3.071 million was transferred to more accurately reflect execution plan and begin design and development of tech data package for CCH MK2			
Title: Combatant Craft Mission Equipment (CCME) ***Description:*** This sub-project provides a rapid response capability to support SOF combatant craft systems, subsystems, and their emerging requirements. CCME provides technology refresh efforts to correct system deficiencies, improve asset life, and enhance mission capability. Demonstrations and modifications may be made to support emerging capability enhancements such as, but not limited to, conformal antennas, identification friend-or-foe capabilities, enhanced communications, weapon integration, software refresh, and navigation subsystems in support of future missions. Solutions to these emerging requirements may be commercial-off-the-shelf leveraged from other government agencies, or new solutions. ***FY 2019 Plans:*** Continue evaluation of candidate solutions for technology development including shock mitigation, family of antennas, situational awareness, and Tactical Mission Networking. Begin evaluation of candidate solutions for enhanced Global Positioning System. Transitions Maritime Precision Engagement. Complete Link 16 Test and Integration. ***FY 2020 Plans:*** Continues evaluation of candidate solutions for technology development including shock mitigation, family of antennas, situational awareness, Tactical Mission Networking, and enhanced Global Positioning System. Begins evaluation of candidate	0.592	1.125	6.490

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S1684 / *Surface Craft*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020
solutions for Digital Radar. Expands investment in enhanced survivability, navigation, Computers, Intelligence, Surveillance, and Reconnaissance Systems (C4ISR)/Situational Awareness (SA), power & energy, and other assured access technologies. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $5.365 million is due to increased investment in enhanced survivability, navigation, C4ISR/SA, power & energy, and other assured access technologies.			
Title: Combatant Craft Assault (CCA) ***Description:*** This sub-project is a combatant craft for squad-size maritime mobility operations in maritime denied environments. CCA is NSW's best craft for VBSS in maritime denied environments up to and including medium threat. It is the craft-of-choice for maritime interdiction and boarding operations because of the open deck space, maneuverability, and interoperability with an Afloat Forward Staging Base. Iron Triangle: 40 kt speed; 3 crew + 12 pax / 5,000 lb payload; and 300 nm range. At 41 feet long, CCA is air transportable by C-130 / C-17 / C-5 and can launch/recover by crane, davit, well deck, or shore based trailer. ***FY 2019 Plans:*** Continue integration and testing of CCFLIR2 mast design and SSN-8 Tactical Computer System. ***FY 2020 Plans:*** Continues integration and testing of CCFLIR2 mast design and SSN-8 Tactical Computer System. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $0.006 million is due to minor adjustments	0.668	0.515	0.521
Title: Threat Awareness System (TAS) ***Articles:*** ***Description:*** This sub-project provides SOF with an Electronic Intelligence capability for enhanced force protection of SOF in Maritime denied environments by allowing them to identify and avoid enemy detection capabilities. TAS will utilize technological advancements to gain significant improvements in capability such as miniaturization and marinization to enable seamless craft integration. ***FY 2019 Plans:*** Continue development and testing of TAS. ***FY 2020 Plans:*** Re-phasing into platforms for integration of TAS. ***FY 2019 to FY 2020 Increase/Decrease Statement:***	2.782 -	2.261 1	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S1684 / *Surface Craft*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020
Decrease of $2.261 million is due to the transfer of funds into the applicable platforms and will transfer to JTWS program office.			
Title: Maritime Precision Engagement (MPE)	-	10.000	13.537
Description: This sub-project is a family of standoff, loitering, man-in-the-loop weapons systems deployed on combatant craft and capable of targeting individuals, groups, vehicles, high value targets, and small oceangoing craft with low collateral damage. The program consists of combatant craft alterations, launcher systems, and munitions. ***FY 2019 Plans:*** Begin design and development of the production representative article. ***FY 2020 Plans:*** Continues design and development of craft modifications, launcher systems production representative article, and operator control system. Efforts will include the final design, integration and testing of the MPE Engineering Design Module (EDM). This includes initial launcher system and munitions prototypes into the combatant craft medium. Additional work will be performed in the design and subsequent integration of similar MPE launcher capabilities into the Combatant Craft Heavy platform. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase of $3.537 million is due to the continuation of craft modifications, launcher systems production representative article, and operator control system on CCM and adding additional designs for CCH.			
Accomplishments/Planned Programs Subtotals	8.051	15.574	27.421

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• PROC/0204SCCS: *Combatant Craft Systems*	40.772	15.913	33.088	-	33.088	31.202	43.349	68.641	64.242	Continuing	Continuing

Remarks

N/A

D. Acquisition Strategy

• Middle-Tier acquisition to accommodate rapid prototyping, may be utilized

• CCM was a two-phase source selection process. Phase I involved a Small Business Set-Aside competition for two vendors to design, build and deliver test articles. Phase II selected a single vendor to provide a fully integrated baseline craft system for test and evaluation with options for production, engineering support, and contractor logistic support.

Exhibit R-2A, RDT&E Project Justification: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S1684 / *Surface Craft*

• CCH SEALION I & II were transitioned from United States Navy advanced technology demonstrator craft to USSOCOM. Sustainment for SEALION I & II is conducted via Special Operations Forces Support Activity. SEALION III is Sole Source to the Original Equipment Manufacturer (OEM) in order to take advantage of previous Government investments in manufacturing infrastructure for SEALION I & II.

• CCME emphasizes on spearheading Technology Readiness Level (TRL) 6 technology for successful transition into SOF Combatant Craft. CCME accomplishes this by employing the full spectrum of contracting services, using existing contracts where appropriate, and leveraging from other Government agencies to include the Services and USSOCOM SOF AT&L Science & Technology Directorate. CCME focuses on developing the technology for maturity, marinization and compatibility, finally transitioning to the craft. Integration and procurement are managed by the individual Combatant Craft Programs.

• CCA will perform market research to determine the most effective procurement strategy to achieve a common configuration across the CCA fleet.

• TAS PM JTWS conducted a competitive Broad Agency Announcement (BAA) and selected the most viable candidate for a development effort in FY 2018/2019 to mature existing technologies. PM-SS will transfered funds to support integration across the family of Combatant Craft.

• MPE will employ Government engineering expertise and lessons learned to develop a common launch system for Naval Special Warfare combatant craft. Munitions selection will be a full and open competition to meet program requirements.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / *Maritime Systems*	Project (Number/Name) S1684 / *Surface Craft*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Combat Craft Medium (CCM)	C/Various	Various : Various	12.291	2.749	Nov 2017	0.788	Nov 2018	2.917	Nov 2019	-		2.917	Continuing	Continuing	-
Combatant Craft Heavy (CCH)	C/Various	Various : Various	4.934	1.260	Jan 2018	0.885	Jan 2019	3.956	Jan 2020	-		3.956	Continuing	Continuing	-
Combatant Craft Assault	C/Various	NSWC-Carderock : Norfolk, VA	0.421	0.668	Nov 2017	0.515	Nov 2018	0.521	Nov 2019	-		0.521	Continuing	Continuing	-
Combat Craft Mission Equipment (CCME)	C/Various	Various : Various	4.453	0.452	Nov 2017	0.888	Nov 2018	5.701	Nov 2019	-		5.701	Continuing	Continuing	-
Maritime Precision Engagement (MPE)	C/Various	NSWC : Dahlgren, VA	-	-		9.800	Dec 2018	13.333	Dec 2019	-		13.333	Continuing	Continuing	-
Threat Awareness System (TAS)	C/Various	Various : Crane, IN	-	2.782	Mar 2018	1.661	Mar 2019	-		-		-	0.000	4.443	-
Prior Year Costs	C/Various	Various : Various	3.679	-		-		-		-		-	0.000	3.679	-
		Subtotal	25.778	7.911		14.537		26.428		-		26.428	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CCME	C/Various	Various : Various	1.358	0.140	Nov 2017	0.237	Nov 2018	0.239	Nov 2019	-		0.239	Continuing	Continuing	-
TAS	C/Various	Various : Various	-	-		0.239	Mar 2019	-		-		-	0.000	0.239	-
Prior Year Costs	C/Various	Various : Various	2.395	-		-		-		-		-	0.000	2.395	-
		Subtotal	3.753	0.140		0.476		0.239		-		0.239	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CCME	C/Various	Various : Various	-	-		-		0.550	Nov 2019	-		0.550	Continuing	Continuing	-
MPE	C/Various	Various : Various	-	-		0.200	Dec 2018	0.204	Dec 2019	-		0.204	Continuing	Continuing	-
TAS	C/Various	Various : Various	-	-		0.361	Mar 2019	-		-		-	0.000	0.361	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 United States Special Operations Command			Date: March 2019
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 1160483BB / *Maritime Systems*	Project (Number/Name) S1684 / *Surface Craft*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Costs	C/Various	Various : Various	3.536	-		-		-		-		-	0.000	3.536	-
		Subtotal	3.536	-		0.561		0.754		-		0.754	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	33.067	8.051		15.574		27.421		-		27.421	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
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Combatant Craft Medium Schedule

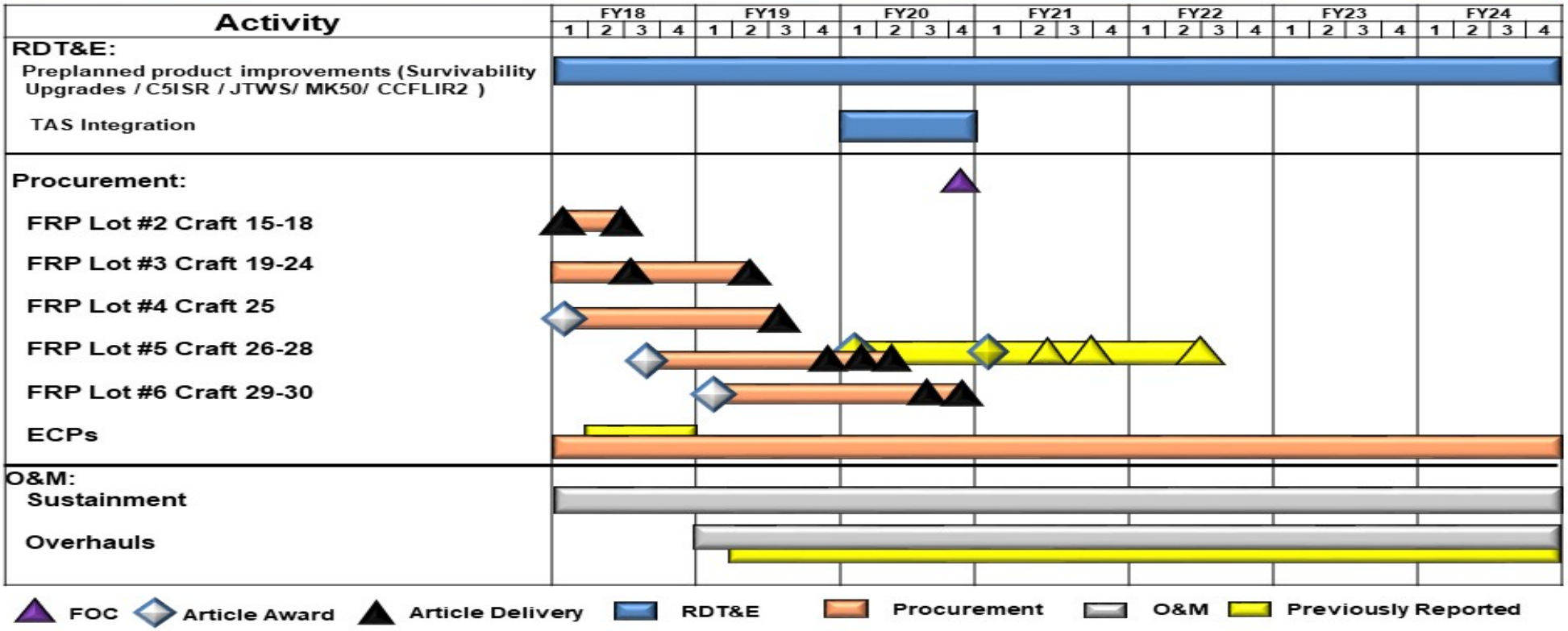


Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S1684 / *Surface Craft*

Combatant Craft Heavy Schedule

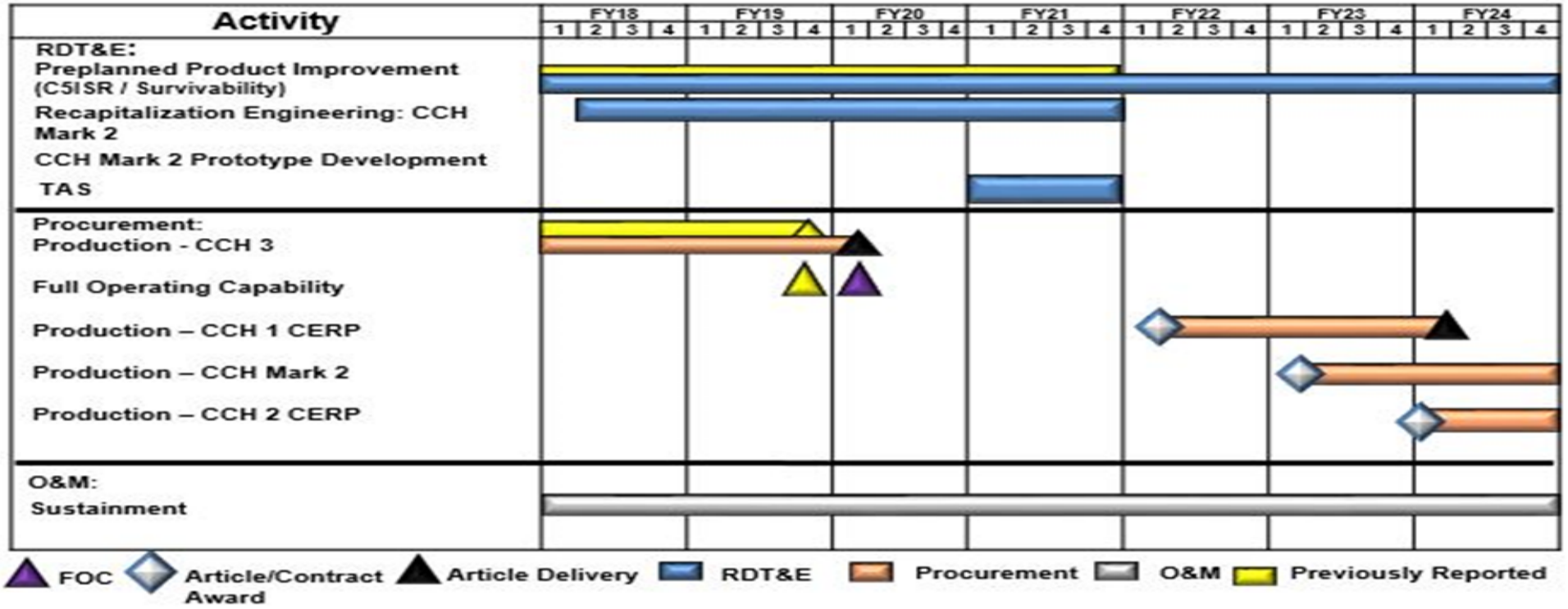
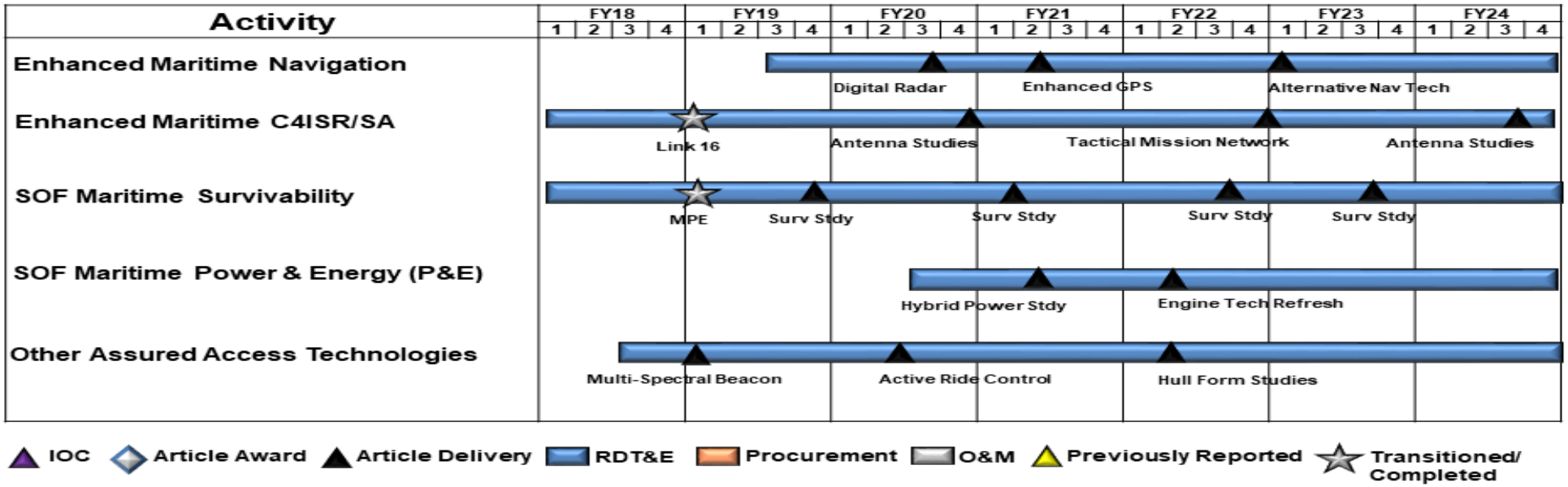


Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S1684 / *Surface Craft*

CCME Schedule



NOTE: ALL CCME Procurements accomplished in program lines

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
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Combatant Craft Assault Schedule

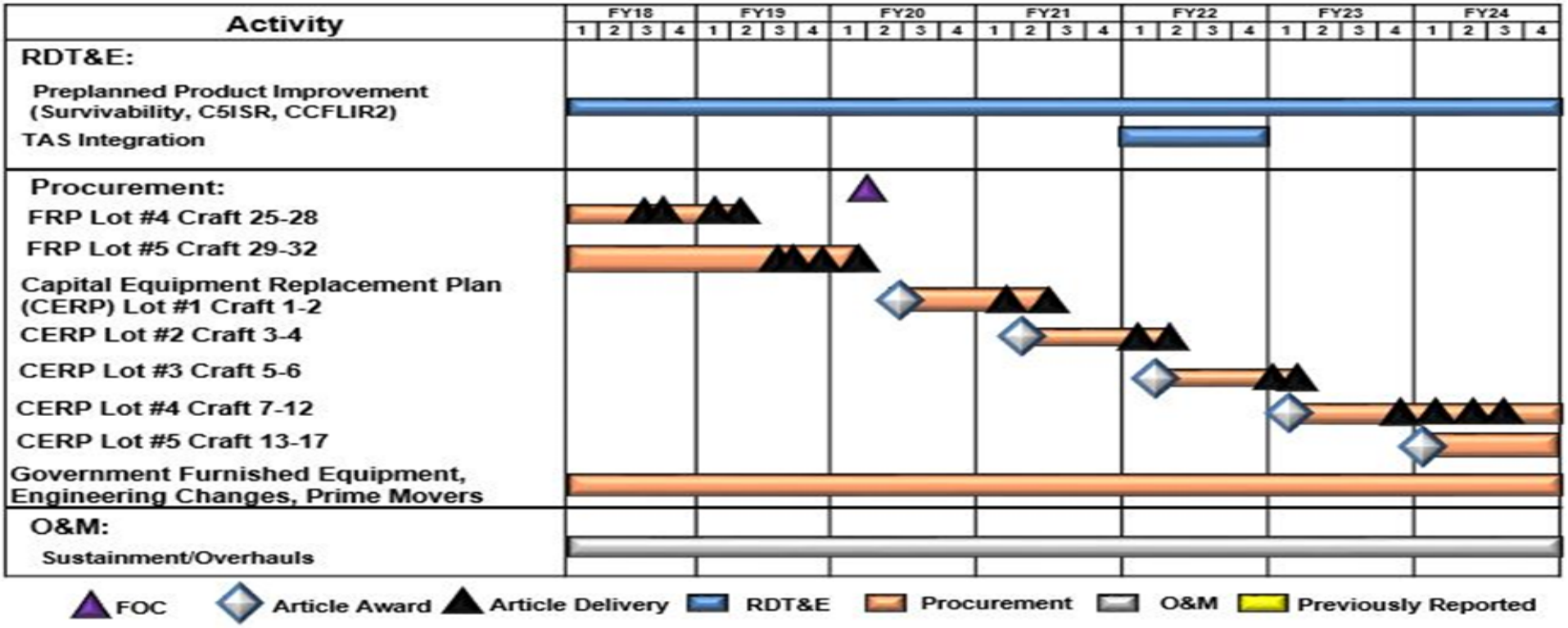

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S1684 / *Surface Craft*

Threat Awareness System Schedule

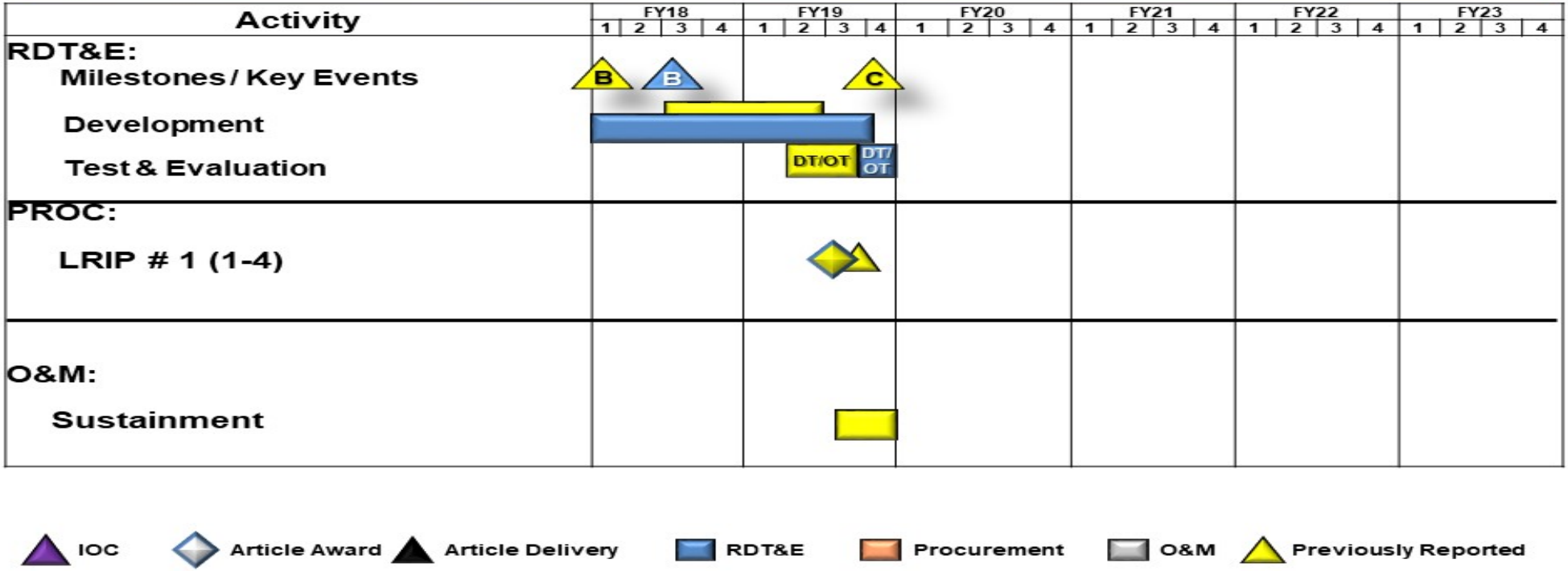

Exhibit R-4, RDT&E Schedule Profile: PB 2020 United States Special Operations Command		Date: March 2019
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Maritime Precision Engagement Schedule

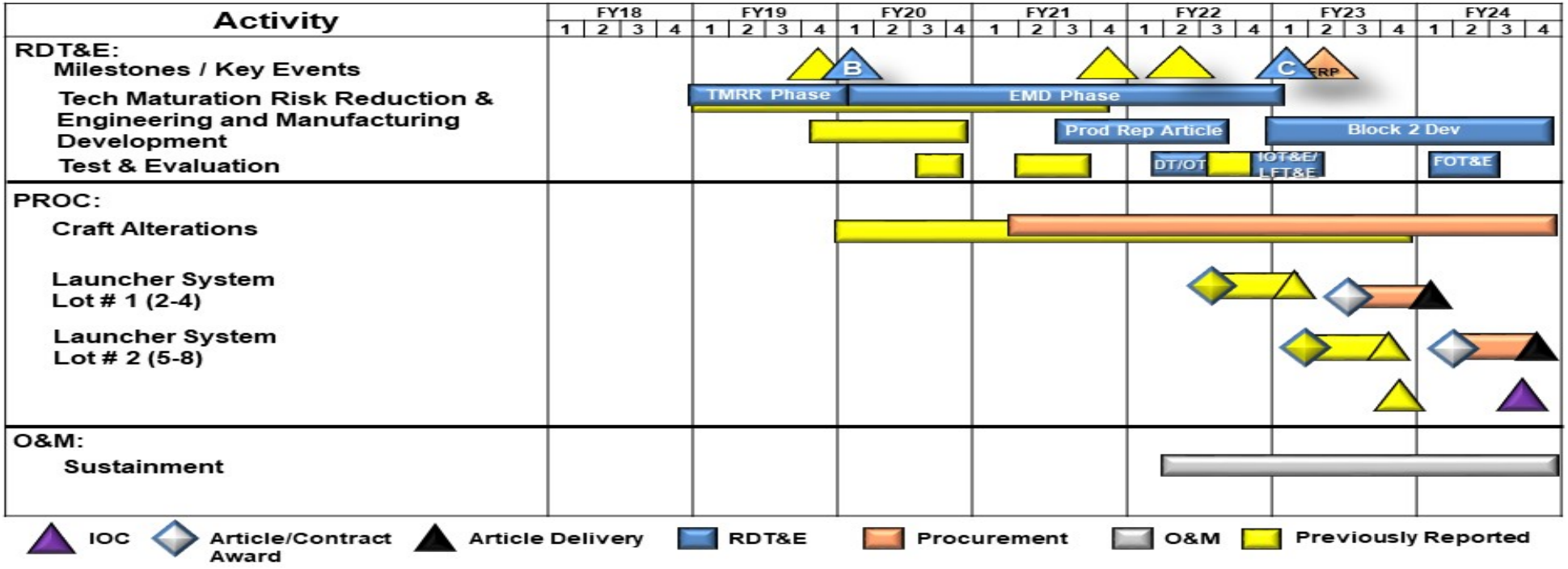

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 1160483BB / *Maritime Systems*	**Project (Number/Name)** S1684 / *Surface Craft*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Combatant Craft Medium				
Weapons, Survivability, C5ISR, Combatant Craft Forward Looking Infrared (CCFLIR2), Joint Threat Warning System (JTWS), and MK50	1	2018	4	2024
Threat Awareness System (TAS)	1	2020	4	2020
Combatant Craft Heavy				
Preplanned Product Improvement (Weapons / C5ISR / Survivability)	1	2018	4	2024
Recapitalization Engineering: CCH MK2	2	2018	4	2021
TAS	1	2021	4	2021
Combatant Craft Mission Equipment				
Shock Enhancements/Active Ride Control	2	2018	3	2020
Situational Awareness Sensors/Antennas	2	2018	4	2020
Survivability Enhancement/Craft Paint Study	1	2018	4	2022
Threat Analysis	2	2021	4	2022
Obsolescence Analysis and Test (Tech Refresh)	1	2018	4	2024
Airborne Mission Network - Maritime	1	2019	4	2022
Survivability Studies	1	2018	3	2024
Link 16	1	2018	1	2019
Maritime Precision Engagement	1	2018	1	2019
Digital Radar	1	2020	4	2021
Enhanced Global Positioning System (GPS)	3	2019	2	2021
Combatant Craft Assault				
Preplanned Product Improvement (Survivability, Weapons, C5ISR, CCFLIR2)	1	2018	4	2024
TAS	1	2022	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2020 United States Special Operations Command		Date: March 2019
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Threat Awareness System				
Milestone B	3	2018	3	2018
Development	1	2018	4	2019
Test and Evaluation	4	2019	1	2021
Maritime Precision Engagement				
Technology Maturation and Risk Reduction (TMRR)	1	2019	1	2020
Milestone B	1	2020	1	2020
Milestone C	1	2023	1	2023
Engineering and Manufacturing Development	1	2020	1	2023
Production Representative Article	3	2021	3	2022
Block 2 Dev	4	2022	4	2024
Test and Evaluation	1	2022	2	2023
FOT&E	1	2024	3	2024

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160489BB / *Global Video Surveillance Activities*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	53.817	4.661	4.780	5.363	-	5.363	5.471	5.584	5.699	5.832	Continuing	Continuing
S500C: *Global Video Surveillance Activities*	53.817	4.661	4.780	5.363	-	5.363	5.471	5.584	5.699	5.832	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element is part of the Military Intelligence Program. Details are provided under separate cover.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	4.661	4.780	5.388	-	5.388
Current President's Budget	4.661	4.780	5.363	-	5.363
Total Adjustments	0.000	0.000	-0.025	-	-0.025
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.025	-	-0.025

Change Summary Explanation

Funding:

FY2018: None.

FY2019: None.

FY2020: Decrease of $0.025 million is due to minor adjustments.

Technical: None.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 United States Special Operations Command	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 1160490BB / *Operational Enhancements Intelligence*

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	98.027	12.067	12.176	12.962	-	12.962	16.270	15.723	16.000	16.322	Continuing	Continuing
S500D: *Operational Enhancements Intelligence*	98.027	12.067	12.176	12.962	-	12.962	16.270	15.723	16.000	16.322	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project is part of the Military Intelligence Program. This project is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	12.049	12.176	13.573	-	13.573
Current President's Budget	12.067	12.176	12.962	-	12.962
Total Adjustments	0.018	0.000	-0.611	-	-0.611
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.018	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-0.611	-	-0.611

Change Summary Explanation

Funding:

FY2018: Details for reprogramming increase of $0.018 million are available under separate cover.

FY2019: None.

FY2020: Decrease of $0.611 million is due to transfer for higher command priorities.

Schedule: None.

Technical: None.

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