Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force											Date: February 2018	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0205219F / *MQ-9 UAV*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	1,086.386	167.239	201.394	115.345	4.500	119.845	225.619	246.000	192.116	172.650	922.964	3,334.213
675246: *MQ-9 Development and Fielding*	1,086.386	117.275	119.783	22.844	0.000	22.844	45.723	61.003	33.006	33.607	0.000	1,519.627
675247: *Squadron Operations Centers (SOC)*	0.000	0.000	7.264	5.752	0.000	5.752	0.000	0.000	0.000	0.000	0.000	13.016
675249: *MQ-9 Upgrade*	0.000	49.964	74.347	86.749	4.500	91.249	179.896	184.997	159.110	139.043	922.964	1,801.570
Program MDAP/MAIS Code: 424												

Note

This program, BA 7, PE 0205219F, project 675246, Communications, is a new start.

Received $35M of FY17 MQ-9 3600 ACAT II OCO funding under the 675249: MQ-9 Upgrade program, ESP coded 7C. This funding is not correctly reflected in IDECS or the latest ABIDES run (11 Jan 2018, version 2).

A. Mission Description and Budget Item Justification

The basic MQ-9 Reaper system consists of the aircraft, sensors, ground control station (GCS), communications equipment, weapon kits, support equipment, simulator and training devices, Readiness Spares Packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. The system is designed to be modular and open-ended. Mission-specific equipment is employed on specific aircraft and control station configurations to be tailored to fit mission needs.

In FY19 the MQ-9 Reaper system has three separate development programs. This PE includes:

1. MQ-9 Development and Fielding. This effort is for development and fielding of the baseline MQ-9 aircraft and GCSs and associated communications systems, sensors, payloads, simulators and support equipment as well as resolving DMS issues.

2. Squadron Operations Centers (SOC). This effort is for development and fielding of standardized operations centers containing the equipment necessary for remote split operation, to provide mission data and tasking information to the aircrew and disseminate and/or exchange mission data with decision-makers and the intelligence community.

3. MQ-9 Upgrade. This effort is to develop improvements for existing systems and to field new capabilities for the baseline MQ-9 fleet using a Hybrid Acquisition Strategy.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*

This program element may include necessary civilian pay expenses required to manage, execute, and deliver MQ-9 weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	151.373	201.394	197.573	0.000	197.573
Current President's Budget	167.239	201.394	115.345	4.500	119.845
Total Adjustments	15.866	0.000	-82.228	4.500	-77.728
• Congressional General Reductions	-0.057	0.000			
• Congressional Directed Reductions	-13.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	35.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-6.077	0.000			
• Other Adjustments	0.000	0.000	-82.228	4.500	-77.728

Change Summary Explanation

FY17
- $13M Congressional reduction for program growth
- $6.077M in SBIRS reductions
+ $35M Congressional add for Automatic Take-off Landing Control (ATLC)

FY19 Base
- The FY19 funding request was reduced by $96.728 million to account for the availability of prior year execution balances.
+ $10M added to address Dismount Radar development

FY19 OCO
+ $4.5M added to address Link 16 development

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / *MQ-9 UAV*	Project (Number/Name) 675246 / *MQ-9 Development and Fielding*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
675246: *MQ-9 Development and Fielding*	1,086.386	117.275	119.783	22.844	0.000	22.844	45.723	61.003	33.006	33.607	0.000	1,519.627
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 7, PE 0205219F, project 675246, Communications, is a new start.

Quantity of RDT&E Articles refers only to test aircraft.

A. Mission Description and Budget Item Justification

The basic MQ-9 Reaper system consists of the aircraft, sensors, ground control station (GCS), communications equipment, weapon kits, support equipment, simulator and training devices, Readiness Spares Packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. The system is designed to be modular and open-ended. Mission-specific equipment is employed on specific aircraft and control station configurations to be tailored to fit mission needs.

The MQ-9 Reaper aircraft is a single-engine, turbo-prop Remotely Piloted Aircraft (RPA) designed to operate over-the-horizon at medium-to-high altitude for long endurance sorties. The aircraft is designed to primarily prosecute critical emerging Time-Sensitive-Targets (TSTs) using a Synthetic Aperture Radar (SAR), Electro-optical/Infrared (EO/IR), and laser designator-based attack asset with on-board hard-kill weapon capability (hunter-killer). It also performs Intelligence, Surveillance, Reconnaissance and Target Acquisition (ISR TA).

The MQ-9 system is continuing to develop and field capabilities to meet evolving mission needs through incremental upgrades, including but not limited to: increasing the maximum gross takeoff weight; increasing operational range and endurance; propulsion system improvements; integrated redundant avionics; incorporating provisions for a Foreign Military Sales(FMS) exportable version of the weapon system; communications upgrades to include but not limited to datalink encryption, Internet Protocol (IP) networking, secure voice and data communications; navigation system upgrades; electrical system upgrades; sensor/stores management computer improvement; MIL-STD-1760 advanced weapons data bus; advanced sensor and weapon payloads; improved human-machine interface (HMI); software updates needed to support new configurations and development; integrating additional precision weapons; hardware and software upgrades to the ground control station. The program will also complete airworthiness and weapon system certification and accreditation; produce applicable training for payloads funded in other program elements (e.g. SIGINT, communications, Wide Area Motion Imagery (WAMI), Near Vertical Direction Finding (NVDF), Gorgon Stare Quick Reaction Capability, advanced Counter-Improvised Explosive Device (C-IED), missile defense, hyperspectral, and other sensors and weapons). Development efforts will address reliability, maintainability, sustainability, (Diminishing Manufacturing Sources) DMS and safety issues. Activities also include, but not limited to, trade studies, analyses, preliminary systems engineering, system and subsystem level testing in accordance with DoD and military standards, and specification development in support of both current program planning and execution, and studies supporting analysis and investment in future MQ-9 program planning.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675246 / *MQ-9 Development and Fielding*

The GCS functions as the aircraft cockpit and can control the aircraft either within Line-of-Sight (LOS) or Beyond Line-of-Sight (BLOS) via a combination of satellite relay and terrestrial communication architectures. The GCS is either mobile to support forward operating locations or fixed at a facility to support reach back Remote Split Operations (RSO). The GCS has the capability to: perform mission planning; provide a means for manual control; and enable personnel to launch, recover, and monitor aircraft, payloads, and system communications status. It incorporates secure data links to send aircraft and payload commands and receive system telemetry and payload data; monitors threats to the aircraft; displays the common operational picture; and provides support functions. Launch and Recovery GCS (LRGCS) is used for servicing, systems checks, maintenance, launch and recovery of aircraft under LOS control for hand-off to a mobile or fixed facility GCS, and conducting operations within LOS range of the LRGCS. GCS upgrades will be developed and fielded in coordination with improvements to other MQ-9 system capabilities and in response to evolving operational and information assurance/certification and accreditation requirements.

This project will also increase interoperability among developed systems by developing common standards and tools.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver MQ-9 weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

Funding may be used to address Diminishing Manufacturing Sources (DMS) and Non-Recurring Engineering (NRE) issues.

This program is Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: MQ-9 System Development and Demonstration (SDD) ***Description:*** Complete development to meet MQ-9 Capabilities Production Document (CPD) requirements. Including but not limited to engineering change orders and associated studies and general research. ***FY 2018 Plans:*** Will continue general research, engineering change orders and associated studies, this may include, but not limited to KU-BAND PPDL Line Of Sight Modification Characterization Testing, SATCOM and Predator Primary Data Link (PPDL), both Line Of Sight (LOS) and Beyond Line of Sight (BLOS), and upgrade and/or improvements. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease from FY 2018 to FY 2019: SDD funding ends in FY18.	7.622	3.894	-	-	-
Title: Ground Control Station (GCS) Development	66.084	13.526	9.311	-	9.311

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675246 / *MQ-9 Development and Fielding*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: Develop GCS capabilities. Major capabilities include, but not limited to, payload separation, open system architecture, multi-level security, ergonomic cockpit design, single seat operations, and reducing or eliminating known deficiencies in legacy GCS. ***FY 2018 Plans:*** Will continue GCS design/development, manufacturing and test including, but not limited to: • Hardware/Software Development • Integration and test • Procure additional Block 50 GCS Development Test assets (for a total of 7 development Test Assets) • Continue Contractor test build • Maintenance evaluation team event • Military Flight Release • Resolution of diminishing manufacturing sources (DMS) issues • Field Service Representative (FSR) support during IOT&E ***FY 2019 Base Plans:*** Will continue GCS design/development, manufacturing and test including, but not limited to: • Hardware/Software Development • Integration and test • Procure additional Block 50 GCS Development Test assets (for a total of 7 development Test Assets) • Continue Contractor test build • Maintenance evaluation team event • Military Flight Release • Resolution of DMS issues • Field Service Representative (FSR) support during IOT&E ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding reduced in FY19 due to higher USAF priorities.					
Title: MQ-9 MTS-B Electro-Optic/Infrared (EO/IR) Sensor	0.277	3.365	-	-	-
Description: Develop improved Multi-Spectral Targeting System (MTS-B) modes of operation and upgrade full motion video capability to include, but not limited to, an all digital architecture employing High-Definition (HD) camera formats, imagery improvements across all multi-spectral bands (color and infrared) and Target Location					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675246 / *MQ-9 Development and Fielding*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Accuracy (TLA) enhancements to support use of coordinate seeking weapons, and integration of High Definition Electro-optical Infra-red sensor upgrades, and software updates. ***FY 2018 Plans:*** • Will Support MTS software development integration into the MQ-9 platforms • Will continue to develop, integrate, improve EO/IR sensor capabilities • Will continue to develop, integrate enhanced laser spot tracker capabilities • Will continue to progress towards improved organic field & depot support & sustainment • Resolution of DMS issues ***FY 2018 to FY 2019 Increase/Decrease Statement:*** MTS software development integration will continue under the MQ-9 upgrade program (project 675249).					
Title: Operator Simulator ***Description:*** Develop Operator Simulators for training and updates to keep Operator Simulators concurrent with the aircraft and Ground Control Station (GCS) to include Joint Urgent Operational Need (JUON) support emerging Air Force Special Operations Command (AFSOC) configurations. ***FY 2018 Plans:*** Will continue to implement updates which will keep the Operator Simulator current with the aircraft and GCS, including, but not limited to: • Sensors • Databases • Weapons upgrades • Resolution of DMS issues ***FY 2019 Base Plans:*** Will continue to implement updates which will keep the Operator Simulator current with the aircraft and GCS, including, but not limited to: • Sensors • Databases • Weapons upgrades • Resolution of DMS issues ***FY 2018 to FY 2019 Increase/Decrease Statement:***	7.461	4.745	3.769	-	3.769

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675246 / *MQ-9 Development and Fielding*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Operator Simulator development efforts will continue at a reduced level as efforts under the MQ-9 upgrade program (project 675249) ramp up.					
Title: Release 1 and Release 2	28.255	80.186	5.605	-	5.605
Description: Release 1 and Release 2 continue execution of a subset of work previously performed under the System Developmemt and Demonstration (SDD) effort, while rapidly integrating upgrades or improvements (including limited urgent needs) fleet-wide. Development will combine the rigor of an event driven development process (referred to as a Technology Maturation Effort (TME)) with the expeditious delivery of a schedule driven integration and fielding process (referred to as a Release). These efforts may include, but not limited to: Take off and landing Data (TOLD), MTS-B Integration, GCS Block 50, Counter IED, IP Migration, SAR Development, GCS Block 30, Extended Range, Enablers Development, Multi Transit Ops, weapons integration, OA MCM, and test on MQ-9 platform for capabilities such as rockets, missiles, bombs, guns and direct energy weapons, as well as software development required to support new capabilities. ***FY 2018 Plans:*** Continue developing and integrating the software and data to update the MQ-9 Block 5 UAS capabilities to include but not limited to: • Test and delivery of updated Operational Flight Program (OFP) releases of increased communications, sensors and weapons capabilities • Systems Integration Laboratory and Hardware In Loop Laboratory testing • Systems engineering data development • Technical orders (TOs) and training documentation development • Test planning • Integrated test execution (development test & operational test) • Initial training • Preparation for limited fielding of aircraft (logistics activities) • Software Development to support new capabilities • Take off and landing Data (TOLD) • Resolution of DMS issues Complete Tech Maturation events for Stations 1&7 Wiring (BLOS), Extended Range for Block 5 aircraft and Payload Multi-Plexing. Activities to include but not limited to: • Drawings					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675246 / *MQ-9 Development and Fielding*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
• T-2 Mods/Technical Orders • Ground test • Safety and Airworthiness certifications • Specification work • Software Development to support new capabilities ***FY 2019 Base Plans:*** Continue developing and integrating the software and data to update the MQ-9 Block 5 UAS capabilities that would include, but not limited to: • Resolution of DMS issues ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Tech maturation efforts will continue at a reduced level as efforts under the MQ-9 Upgrade program (project 675249) ramp up.					
Title: Test Support ***Description:*** Provides Other Government Agency support for MQ-9 testing to include, but not limited to, continued acceptance testing of weapon system hardware and software IAW with contract standards, developmental testing of new capabilities, and Reliability and Maintainability (R&M) upgrades. ***FY 2018 Plans:*** Will continue test support ***FY 2019 Base Plans:*** Will continue test support ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Test Support efforts will continue at a reduced level as efforts under the MQ-9 Upgrade program (project 675249) ramp up.	1.453	1.240	0.801	-	0.801
Title: Communications ***Description:*** Develop MQ-9 communications capabilities including, but not limited to, encrypted and improved LoS data links to ROVER/Video Data Link terminals (VORTEX/Airborne Platform Video Data Link) and Bandwidth Efficient (BE) Common Data Link (CDL) for Command and Control (C2) and ISR transmission to GCS, as well as improved (including BE) Beyond LOS (BLOS) military Satellite Communications (SATCOM) usage. Development and integration of an IP-based RSO network/infrastructure to include: Improvements to Ground Data Terminals (GDT), Design, development, and test of IP-based network interfaces, Improved	-	-	0.073	-	0.073

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675246 / *MQ-9 Development and Fielding*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Predator Primary Data Link (PPDL) capabilities, network systems managers, SATCOM and relay site capabilities upgrades, drafting Technical Orders (TOs) and support documentation, training materials, production drawings, and retrofit acceptance plans. ***FY 2019 Base Plans:*** Begin to develop and enhance MQ-9 communications capabilities, to include but not limited to, solutions of various DMS issues ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Primarily in order to mitigate the effects of diminishing manufacturing sources, the communication subsystems of the MQ-9 ACAT I program will begin development of suitable replacements in FY19.					
Title: MQ-9 Technology Insertion ***Description:*** Develop program protection Technology Insertion capabilities and functionality for the MQ-9 Weapon System. ***FY 2018 Plans:*** Will continue development of program protection Technology Insertion capabilities and functionality for the MQ-9 Weapon System including aircraft, sensors, and Ground Control Station (GCS) documentation and drawings ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Technology Insertion will continue under the MQ-9 Upgrade program (project 675249).	6.023	9.633	-	-	-
Title: Reliability and Maintainability ***Description:*** Develop MQ-9 modification improvements for aircraft, engines and ground base infrastructure. Includes, but not limited to engineering change orders, associated studies and general research. ***FY 2018 Plans:*** Develop MQ-9 modification improvements for aircraft and ground based infrastructure to improve mission capable rates and reduce reliability and maintainability cost, as well as addressing and resolving diminishing manufacturing sources (DMS) issues. ***FY 2019 Base Plans:***	0.100	3.194	3.285	-	3.285

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675246 / *MQ-9 Development and Fielding*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue to develop MQ-9 modification improvements for aircraft and ground base infrastructure, to include, but not limited to engineering change orders, associated studies and general research as well as addressing and resolving diminishing manufacturing sources (DMS) issues. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to estimated inflation.					
Accomplishments/Planned Programs Subtotals	117.275	119.783	22.844	-	22.844

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• APAF 04 Line Item PRDTB1: *MQ-9*	488.552	388.221	349.707	-	349.707	497.568	213.863	266.727	413.252	396.090	3,013.980
• APAF 06 Line Item PRDTB1: *MQ-9 Spares*	82.193	48.693	103.890	-	103.890	181.076	74.995	66.872	103.508	21.330	682.557
• APAF 05 Line Item PRDTB2: *MQ-9 Mods*	69.295	132.869	155.727	-	155.727	138.646	141.801	101.319	103.162	40.680	883.499
• APAF 07 Line Item PRDTB1: *MQ-9*	30.858	36.368	25.671	-	25.671	26.607	26.622	27.154	27.648	0.000	200.928

Remarks

D. Acquisition Strategy

The MQ-9 Reaper system will be acquired via sole-source contracts with General Atomics Aeronautical Systems Inc. (GA-ASI), L3Comm, and Raytheon as the prime contractors. GA-ASI is the prime contractor for aircraft and ground control stations. GA-Mission Systems (GA-MS) is the prime contractor for Lynx SAR. L3Comm is the prime contractor for the Predator Satellite Link. Raytheon is the prime contractor for the MTS-B EO/IR sensor system. Management of development and fielding of new capabilities will be through an acquisition strategy that combines the rigor of an event driven development process (referred to as a Technology Maturation Effort (TME)) with the expeditious delivery of a schedule driven integration and fielding process. This will allow continued baseline improvements while rapidly integrating limited urgent needs fleet-wide.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675246 / *MQ-9 Development and Fielding*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MQ-9 System Development and Demonstration (SDD)	SS/CPIF	GA-ASI : Poway, CA	346.359	6.960	May 2017	3.466	May 2018	-		-		-	0.000	356.785	362.453
Ground Control Station (GCS) Development	SS/CPFF	GA-ASI : Poway, CA	229.411	60.346	Oct 2016	12.037	Oct 2017	7.359	Oct 2018	-		7.359	146.969	456.122	349.818
Multi-Spectral Targeting System (MTS)-B EO/IR Sensor	SS/CPFF	Raytheon : McKinney, TX	112.754	0.253	Feb 2017	2.994	Mar 2018	-		-		-	0.000	116.001	112.944
Operator Simulator	SS/CPIF	L3 Comm : Salt Lake City, UT	34.871	7.461	Apr 2017	4.745	Mar 2018	3.769	Mar 2019	-		3.769	6.382	57.228	56.512
Release1 and Release 2	SS/CPFF	GA-ASI : Poway, CA	84.112	25.803	May 2017	71.360	Feb 2018	4.430	Feb 2019	-		4.430	0.000	185.705	161.096
Communication	SS/CPFF	GA-ASI : Poway, CA	16.120	-		-		0.073	Mar 2019	-		0.073	0.118	16.311	17.336
MQ-9 Program Protection Technology Insertion	SS/CPFF	GA-ASI : Poway, CA	39.431	5.500	Apr 2017	8.572	Apr 2018	-		-		-	0.000	53.503	58.239
Reliability and Maintainability	SS/CPFF	GA-ASI : Poway, CA	3.860	0.101	Aug 2017	3.194	Apr 2018	3.285	Apr 2019	-		3.285	6.852	17.292	8.023
Completed Efforts	SS/ Various	Various : Various	141.525	-		-		-		-		-	0.000	141.525	77.805
Miscellaneous Prior	Various	Various : Various	-	-		-		-		-		-	0.000	0.000	71.556
		Subtotal	1,008.443	106.424		106.368		18.916		-		18.916	160.321	1,400.472	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	Various	Various : Various, CA	19.878	1.453	Aug 2017	1.240	May 2018	0.801	May 2019	-		0.801	1.306	24.678	22.665
		Subtotal	19.878	1.453		1.240		0.801		-		0.801	1.306	24.678	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / *MQ-9 UAV*	Project (Number/Name) 675246 / *MQ-9 Development and Fielding*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Other Government Costs	Various	Various : Various	58.065	9.398	May 2017	12.175	May 2018	3.127	May 2018	-		3.127	11.711	94.476	119.924
		Subtotal	58.065	9.398		12.175		3.127		-		3.127	11.711	94.476	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,086.386	117.275		119.783		22.844		-		22.844	173.338	1,519.626	N/A

Remarks

PMA costs are included in Other Government Costs.

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675246 / *MQ-9 Development and Fielding*

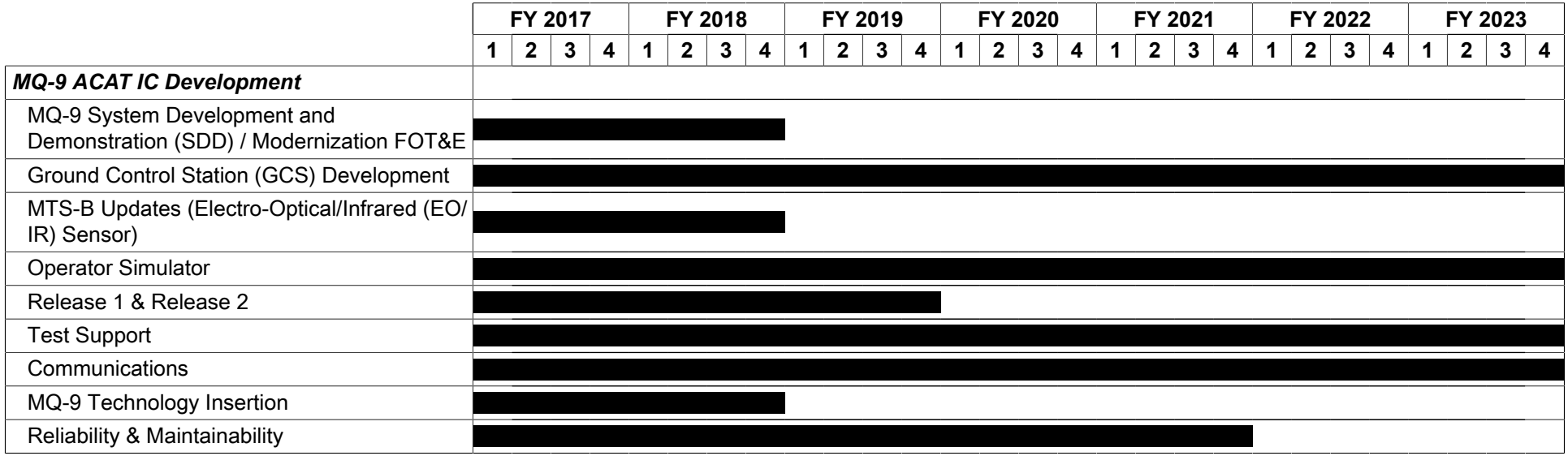

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675246 / *MQ-9 Development and Fielding*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MQ-9 ACAT IC Development				
MQ-9 System Development and Demonstration (SDD) / Modernization FOT&E	1	2017	4	2018
Ground Control Station (GCS) Development	1	2017	4	2023
MTS-B Updates (Electro-Optical/Infrared (EO/IR) Sensor)	1	2017	4	2018
Operator Simulator	1	2017	4	2023
Release 1 & Release 2	1	2017	4	2019
Test Support	1	2017	4	2023
Communications	1	2017	4	2023
MQ-9 Technology Insertion	1	2017	4	2018
Reliability & Maintainability	1	2017	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / *MQ-9 UAV*	Project (Number/Name) 675247 / *Squadron Operations Centers (SOC)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
675247: *Squadron Operations Centers (SOC)*	0.000	0.000	7.264	5.752	0.000	5.752	0.000	0.000	0.000	0.000	0.000	13.016
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY19, PE 0205219F, MQ-9, Project 675247, Squadron Operations Centers(SOC) RDT&E efforts are completed.

A. Mission Description and Budget Item Justification

The SOC is required to employ Remote Split Operations (RSO). It provides the communications, network, aircraft control and sensor distribution circuits to effectively execute RSO missions. The SOC provides CONUS-based aircrews mission data, tasking, and ability to disseminate and exchange mission data with decision-makers and intelligence entities. This effort will define component standards, develop and stand up a SOC Systems Integration Lab (SIL), and integrate new technologies to maintain currency with technological and platform advancements.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver MQ-9 weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Squadron Operations Center	0.000	7.264	5.752	-	5.752
Description: Development of a Squadron Operations Center (SOC) common to ACC, AFSOC, and ANG. Major capabilities include secure mission communications; data reception, recording, editing, analysis, dissemination, and exchange; mission planning, preparation, and support; mission execution (e.g., updates to threat tracking and targeting, weather tracking, mission status and capability; tactical situational awareness; etc.); and mission reconstruction and debriefing.					
FY 2018 Plans: - Design and develop Remotely Piloted Aircraft Squadron Operations Center (RPA SOC) capabilities - Preliminary Design Review - Initial hardware purchase for test asset - Hardware/Software Development					
FY 2019 Base Plans: -Complete design review, development, and delivery of SIL to integrate capabilities into RPA SOC					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Integration of emerging technologies into the SOC baseline.					
FY 2018 to FY 2019 Increase/Decrease Statement: Funding decreased due to procurement of SIL Hardware and Software being programmed in FY18.					
Accomplishments/Planned Programs Subtotals	0.000	7.264	5.752	-	5.752

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• OPAF 03 Line Item 837300: *Base Communications Infrastructure*	-	7.529	45.460	-	45.460	28.898	31.684	32.244	32.818	0.000	178.633

Remarks

Since 2004, MQ-1/MQ-9 squadrons have acquired equipment, on an ad hoc basis, to provide the communications, network, aircraft control and sensor distribution circuits needed to execute Remote Split Operations (RSO) missions. OPAF funding will be used to standardize and modernize existing RPA SOC capability, which is required to reduce security vulnerabilities, as well as address end of life/end of support issues of existing RPA SOC equipment. The Systems Integration Lab will be used to further enhance the program's ability to update future RPA-SOC modernization efforts.

D. Acquisition Strategy

AFLCMC/WII manages the SOC Program for ACC, AFSOC, and ANG through organic development at the 402 SMXG, and hardware/software procurement utilizing the Air Force NETCENTS contract vehicle, as well as other Air Force and GSA contracts.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force		Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RPA SOC Development	Various	402nd SMXG : Robins AFB, GA	-	-		7.264	Jun 2018	5.752	Mar 2019	-		5.752	0.000	13.016	-
		Subtotal	-	-		7.264		5.752		-		5.752	0.000	13.016	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		7.264		5.752		-		5.752	0.000	13.016	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675247 / *Squadron Operations Centers (SOC)*

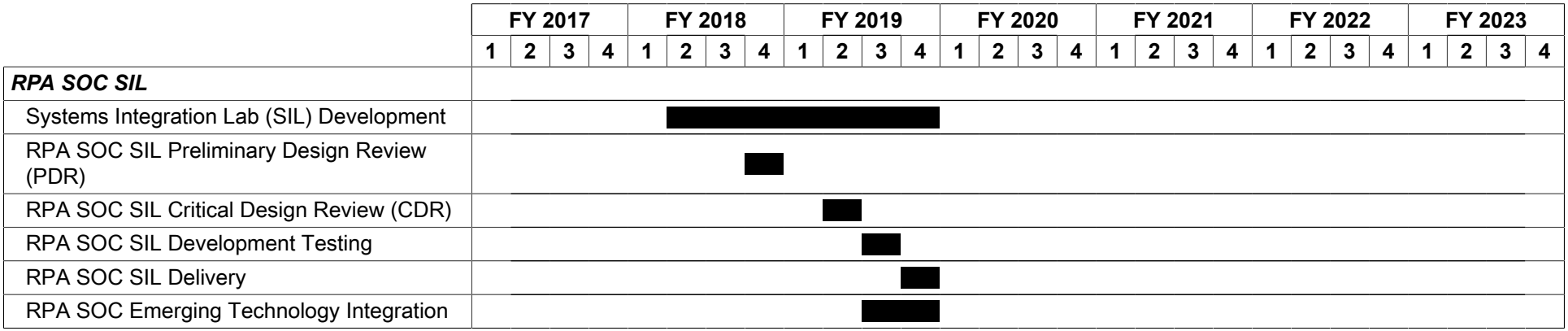

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675247 / *Squadron Operations Centers (SOC)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
RPA SOC SIL				
Systems Integration Lab (SIL) Development	2	2018	4	2019
RPA SOC SIL Preliminary Design Review (PDR)	4	2018	4	2018
RPA SOC SIL Critical Design Review (CDR)	2	2019	2	2019
RPA SOC SIL Development Testing	3	2019	3	2019
RPA SOC SIL Delivery	4	2019	4	2019
RPA SOC Emerging Technology Integration	3	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / *MQ-9 UAV*	Project (Number/Name) 675249 / *MQ-9 Upgrade*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
675249: *MQ-9 Upgrade*	0.000	49.964	74.347	86.749	4.500	91.249	179.896	184.997	159.110	139.043	922.964	1,801.570
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MQ-9 Upgrade Program will develop and integrate improvements for existing systems and field new capabilities for the MQ-9 fleet through an Agile Acquisition Strategy.
The objective is to enable rapid fielding of new software, hardware, and sustainability for integration into the MQ-9 fleet. Per the Combined Capability List (CCL) signed 20 June 2017, capabilities may include, but are not limited to, efforts to reduce system configurations; perform technology upgrades; increase pilot awareness and usability; improve reconnaissance targeting and exploitation; expand weapons system selection and lethality; enlarge suitability to varying operational theaters; Diminishing Manufacturing source (DMS); improve security and self protect; reduce logistics footprint; train the warfighter.

Activities also include studies, analysis, simulations, demonstrations, and testing and the use of "experts" and agencies in developing and testing MQ-9 system capabilities, to include SIL/HIL and DET improvements.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver MQ-9 weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

Funding may be used to address Diminishing Manufacturing Sources (DMS) and Non-Recurring Engineering (NRE) issues.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: MQ-9 Upgrade	49.964	66.595	78.371	4.500	82.871
Description: Develop and integrate upgrade capabilities to support of the MQ-9 Upgrade Strategy. Development will combine the rigor of an event driven development process (referred to as Technology Maturation Effort (TME)) with the expeditious delivery of a schedule driven integration and fielding process. New capabilities will include, but not limited to, upgrades of existing aircraft, GCS, communication, payload systems, and software updates needed to support new configurations and development, the addition of new capabilities and subsystems, as well as addressing and resolving diminishing manufacturing sources (DMS) issues. Final lists of upgrades included will be determined as part of future Combatant Command (ACC, AFSOC) direction and inputs from JUONs and UON requests. Formal approval of software/hardware content will be established in FY 2018 and is currently subject to fluctuation pending customer priorities. Some current candidates for integration into upcoming software releases include, but not limited to:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675249 / *MQ-9 Upgrade*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
• Auto Take-off and Landing Capability (ATLC) • Weapons, weapons capabilities, and weapons usability • Reconnaissance, targeting and technology improvements in MTS, SAR, sensors, and GPS • System corrections, improvements, technology upgrades within the GCS, UAV communications and ground support (i.e., but not limited to DMS, batteries, engine, Bandwidth Efficient (BE) Common Data Link (CDL), Beyond Line of Sight (BLoS)) • Expand theater capabilities such as Anti-ice/De-ice, MWAS, Link 16, MCode, Mode 5, ADS-B, and ABSAA • Improve system security and the ability to self protect through KU or GPS jamming; data encryption, IFF, electronic warfare, signature reduction • Battle Management Command and Control ***FY 2018 Plans:*** Will continue Tech Maturation effort (TME) developing upgrade capabilities in conjunction with the CCL to include, but not limited to: • Auto take off and landing (ATLC) capabilities with agile ground operations (i.e. XC2 and PDGT) • Technology/reliability upgrades such as AoA vane, radios, batteries and operating systems • Improvements to weapons capabilities (i.e. auto-lockout, JAGM, LSDB/UAI) • Updated GCS components for usability, security, and performance (i.e. monitors, controllers) • MTS and SAR improvements for targeting, exploitation, and supportability (i.e. video SAR, improved diagnostics) • Expand theater capabilities (i.e. anti-ice/de-ice) • Studies and analysis, simulations, demonstrations, system corrections, training, and testing • Open Architecture Mission Control Module (OA MCM) ***FY 2019 Base Plans:*** Will continue Tech Maturation effort (TME) developing upgrade capabilities in conjunction with the CCL to include, but not limited to: • Unified Tactical Situational Awareness • Automated Dependent Surveillance - Broadcast (ADS-B) Dismount Radar (DR) to design, development, integration, and testing of Moving Target Indicator (MDI) capability on medium altitude air vehicles for improved dismount and moving target detection, identification, tracking, and classification. ***FY 2019 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675249 / *MQ-9 Upgrade*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Develop MQ-9 Link-16 (Airborne Mission Networking) Capability. Effort include, but not limited to, developmental testing, software updates, documentation and training. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** MQ-9 Upgrade will continue at an increased level as efforts under the MQ-9 Development program (project 675246) ramp down.					
Title: MQ-9 Upgrade - Operator Simulator ***Description:*** Develop Operator Simulators for training and updates to keep operator simulators concurrent with the aircraft and Ground Control Station (GCS) to include, but not limited to, Joint Urgent Operational Need (JUON) support emerging, Air Force Special Operations Command (AFSOC) configurations. ***FY 2018 Plans:*** Implementation of updates which will keep the operator simulator current with the aircraft and GCS, including, but not limited to: • Sensors • Databases • Weapons upgrades • software ***FY 2019 Base Plans:*** Continuing to implement updates which will keep the operator simulator current with the aircraft and GCS. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** MQ-9 Upgrade will continue to increase training and updates to keep operator simulators concurrent with aircraft and GCS configurations.	-	2.500	6.928	-	6.928
Title: MQ-9 Upgrade - Reliability and Maintainability ***Description:*** Develop MQ-9 modification improvements for aircraft and ground base infrastructure. Includes engineering change orders and associated studies, and general research. Address and resolve diminishing manufacturing sources (DMS) issues. • Continue providing Other Government Agency support for MQ-9 testing to include continued acceptance testing of weapon system hardware and software IAW with contract standards, developmental testing of new capabilities, and Reliability and Maintainability (R&M) upgrades. ***FY 2018 Plans:***	0.000	1.645	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675249 / *MQ-9 Upgrade*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Development of MQ-9 upgrades for aircraft and ground base infrastructure to improve mission capable rates and reduce reliability and maintainability costs. Including addressing and resolving diminishing manufacturing sources (DMS) issues. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** MQ-9 Upgrade reliability and maintainability improvements will continue in FY20 & out.					
Title: MQ-9 Upgrade - Test Support ***Description:*** MQ-9 Upgrade testing will provide support, but not limited to, activities for MQ-9 testing of weapon system hardware and software IAW contract standards, developmental testing of new capabilities, and reliability and maintainability (R&M) upgrades. ***FY 2018 Plans:*** Start Test Support ***FY 2019 Base Plans:*** MQ-9 upgrade will continue test support ***FY 2018 to FY 2019 Increase/Decrease Statement:*** MQ-9 upgrade continues to ramp up testing of weapon system hardware and software.	0.000	0.220	1.274	-	1.274
Title: MQ-9 Upgrade - Communications ***Description:*** Develop MQ-9 communications capabilities such as, but not limited to: network systems managers, SATCOM and relay site capabilities upgrades, drafting technical orders (TOs) and support documentation, training materials, production drawings, and retrofit acceptance plans. Examples: Bandwidth Efficient (BE) Common Data Link (CDL) Secure Voice MLS ARC-210 Guard Squelch Vortex C-2 Line of Sight C-Band Replacement ARC-210 Secure Communications VORTEX Air-to-Air/VORTEX BE-CDL ***FY 2018 Plans:***	0.000	2.318	0.176	-	0.176

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675249 / *MQ-9 Upgrade*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Development of communications capabilities such as encrypted and improved data links, terminals, command and control, ISR transmissions, GCS communications, SATCOM usage, developm and integrate IP-based network interfaces, improve primary data links and capabilities, network systems managers, drafting technical orders and support documentation, training materials production drawings and retrofit acceptance plans, test and monitor relay equipment, operational durability, enhance remote split operations and supporting communications equipment including associated tech orders, training and interface updates. ***FY 2019 Base Plans:*** MQ-9 Upgrade communications capabilities development will continue ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Level of effort.					
Title: MQ-9 Upgrade - Urgent Services ***Description:*** Urgent Services, engineering change orders, program office support, studies and general research, and other high level initiatives directed by the Air Force. ***FY 2018 Plans:*** Urgent services, engineering change orders, studies and general research, and other higher level initiatives directed by the Air Force ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease from FY 2018 to FY 2019: MQ-9 Upgrade urgent services will continue in FY20 & out	0.000	1.069	-	-	-
Accomplishments/Planned Programs Subtotals	49.964	74.347	86.749	4.500	91.249

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• APAF 06 PRDTB1: *MQ-9 Spares*	2.850	16.386	1.726	-	1.726	54.069	14.288	14.084	14.341	0.000	117.744
• APAF 05 PRDTB2: *MQ-9 Mods*	134.402	131.871	15.821	-	15.821	289.948	91.845	116.954	71.448	373.020	1,225.309

Remarks

D. Acquisition Strategy

Acquisition of MQ-9 upgrades will initially be accomplished via sole-source contracts with General Atomics-ASI and L-3 Communications, the prime contractors. Management of development and fielding of new capabilities will be through a Hybrid Acquisition Strategy that combines the rigor of an event driven development

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
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process (referred to as a Technology Maturation Effort (TME)) with the expeditious delivery of a schedule driven integration and fielding process (referred to as a Hybrid Release). This will allow continued baseline improvements while rapidly integrating limited urgent needs fleet-wide.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / *MQ-9 UAV*	Project (Number/Name) 675249 / *MQ-9 Upgrade*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MQ-9 Upgrade	SS/CPFF	GA-ASI : Poway, CA	-	47.409	Aug 2017	61.299	Jun 2018	70.687	Jun 2019	4.500	Jun 2019	75.187	1,315.839	1,499.734	1,656.723
Operator Simulator	SS/CPIF	L3 Comm : Salt Lake City, UT	-	-		2.500	Feb 2018	6.928	Feb 2019	-		6.928	69.463	78.891	137.452
Reliability and Maintainability	SS/CPFF	GA-ASI : Poway, CA	-	-		1.645	Apr 2018	-		-		-	33.201	34.846	42.290
Communications	SS/CPFF	GA-ASI : Poway, CA	-	-		2.318	Mar 2018	0.176	Mar 2019	-		0.176	8.806	11.300	2.383
Urgent Services	SS/CPFF	GA-ASI : Poway, CA	-	-		1.069	Mar 2018	-		-		-	19.202	20.271	24.434
		Subtotal	-	47.409		68.831		77.791		4.500		82.291	1,446.511	1,645.042	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	Various	Various : Various	-	-		0.220	May 2018	1.274	May 2019	-		1.274	22.125	23.619	24.807
		Subtotal	-	-		0.220		1.274		-		1.274	22.125	23.619	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Other Government Costs	Various	Various : Various	-	2.555	May 2017	5.296	May 2018	7.684	May 2019	-		7.684	117.374	132.909	206.328
		Subtotal	-	2.555		5.296		7.684		-		7.684	117.374	132.909	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	49.964		74.347		86.749		4.500		91.249	1,586.010	1,801.570	N/A

Remarks

PMA costs are included in Other Government Costs.

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675249 / *MQ-9 Upgrade*

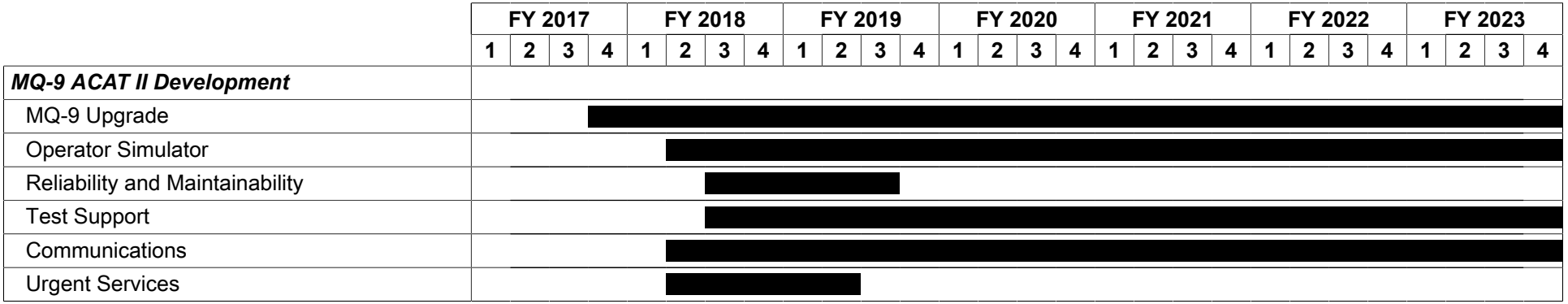

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0205219F / *MQ-9 UAV*	**Project (Number/Name)** 675249 / *MQ-9 Upgrade*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MQ-9 ACAT II Development				
MQ-9 Upgrade	4	2017	4	2023
Operator Simulator	2	2018	4	2023
Reliability and Maintainability	3	2018	3	2019
Test Support	3	2018	4	2023
Communications	2	2018	4	2023
Urgent Services	2	2018	2	2019