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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	76.847	145.499	81.123	0.000	81.123	44.938	46.050	46.993	48.694	72.881	563.025
675212: <i>MQ-9 SLAM</i>	0.000	33.786	92.898	80.846	0.000	80.846	44.679	45.754	46.691	48.380	71.828	464.862
675247: <i>Squadron Operations Centers (SOC)</i>	0.000	0.135	0.268	0.277	0.000	0.277	0.259	0.296	0.302	0.314	1.053	2.904
675249: <i>MQ-9 Upgrade</i>	0.000	42.926	52.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95.259

Program MDAP/MAIS Code: 424

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 in a plug-and-play mission kit concept allowing specific aircraft and GCS configurations to be tailored to fit mission needs.

The MQ-9 Reaper system has four separate development programs. This PE includes:

1. MQ-9 System Lifecycle Agile Modernization (SLAM). This effort develops improvements for existing systems and fields new capabilities for the baseline MQ-9 fleet using an Agile Acquisition Strategy to include concept exploration.
2. 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, support equipment, and resolving Diminishing Manufacturing Sources (DMS) issues. The last year of funding was FY2022.
3. Squadron Operations Centers (SOC). This effort is for development and fielding of standardized operations centers. SOCs contain the equipment necessary for remote split operations, to provide mission data and tasking information to aircrew, and to disseminate and/or exchange mission data with decision-makers and the intelligence community.
4. MQ-9 Upgrade. This effort develops improvements for existing systems and fields new capabilities for the baseline MQ-9 fleet using an Agile Acquisition Strategy.

The Air Force established the MQ-9 Multi-Domain Operation (M2DO) aircraft configuration which consisted of multiple projects intended to keep the platform viable in the wide-spectrum of armed conflict. The configuration included Anti-Jam Global Positioning System, Enhanced Power, Link 16, Open Mission System/Stellar Relay, enhanced data processing, and Command and Control Resiliency. The number of M2DO aircraft, and final capabilities within this configuration, are subject to change as requirements evolve.

MQ-9 Development funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs.

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This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver MQ-9 Weapon System for emergent or unanticipated weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In PY \$2.874M and in CY \$2.935M was expended for civilian pay expenses in this program element.

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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	79.121	98.499	80.940	0.000	80.940
Current President's Budget	76.847	145.499	81.123	0.000	81.123
Total Adjustments	-2.274	47.000	0.183	0.000	0.183
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-4.500			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	51.500			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.324	0.000			
• SBIR/STTR Transfer	-2.598	0.000			
• Other Adjustments	0.000	0.000	0.183	0.000	0.183

Change Summary Explanation

FY2022 Changes: -\$2.598 for Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR); +\$0.324M Below Threshold Reprogramming for Stellar Relay program.

FY2023 Changes: +\$51.500M for MQ-9 Modernization (\$31.5M) and Disaggregated AMTI Development (\$20M); -\$4.500M for MQ-9 LOH carryover (-\$2M), MQ-9 upgrade carryover (-\$1.5M) and Talon AZREAL carryover (-\$1M).

FY2024 Changes: +\$0.183M for inflation adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV				Project (Number/Name) 675212 / MQ-9 SLAM			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675212: MQ-9 SLAM	0.000	33.786	92.898	80.846	0.000	80.846	44.679	45.754	46.691	48.380	71.828	464.862
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MQ-9 System Lifecycle Agile Modernization (SLAM) Program develops and integrates improvements for existing systems and fields new capabilities for the MQ-9 fleet through an Agile Acquisition Strategy to meet evolving mission needs. SLAM includes concept exploration.

The objective is to enable rapid fielding of new software, hardware, and sustainability for integration into the MQ-9 fleet with requirements from the Combat Capability List (CCL) that 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; improve security and self-protection; reduce logistics footprint; train the warfighter, and prototype.

Activities also include, but are not limited to, studies, analysis, simulations, demonstrations, prototyping and testing, use of subject matter experts agencies to develop and test all current and follow-on MQ-9 system capabilities which include, but are not limited to System Integration Laboratory (SIL)/ Hardware in the Loop Laboratory (HILL) and Detachment 3 (Det 3) 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 element 0605831F.

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

Where appropriate there will be cost sharing on joint efforts that are required by all programs to support new capabilities.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024
Title: MQ-9 SLAM	29.261	69.598	80.446
Description: Develops and integrates upgrade capabilities to support the MQ-9 modernization strategy. Development combines the rigor of an event driven development process (referred to as Technology Maturation Effort (TME)) with the expedited delivery of a schedule driven integration and fielding process. New capabilities include, but are not be limited to, upgrades of existing aircraft, Ground Control Station (GCS), communication, payload systems, software updates, and the resolution of Diminishing Manufacturing Sources (DMS) issues.			
Candidate Capabilities are determined by ACC and AFSOC direction and inputs that include Joint Urgent Operational Need (JUON) and Urgent Operational Need (UON) requests.			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Activities also include, but are not limited to, operator simulators, reliability and maintainability, test support, communications, and urgent services.</p> <p>During development, there will be cost sharing on joint efforts that are required by all programs to support new capabilities.</p> <p>Includes but is not limited to, program planning for concept exploration which explores Multi-Role UAS capabilities in a contested environment.</p> <p>FY 2023 Plans: Continue to develop M2DO capability upgrades for resilient C2, Open Mission System, and autonomy. Resolve DMS issues and continue upgrading mandated capabilities to include, but not limited to, Mode 5, data encryption, and weapons usability improvements.</p> <p>FY 2024 Plans: Continue to develop M2DO capability upgrades for resilient C2, Open Mission System, and autonomy. Resolve DMS issues and continue upgrading mandated capabilities to include, but not limited to, Mode 5, data encryption, and weapons usability improvements.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased to ramp up support of SLAM Modernization efforts towards M2DO capabilities</p>				
<p>Title: Reliability and Maintainability</p> <p>Description: Develops MQ-9 Reliability and Maintainability (R&M) improvements for aircraft and ground based infrastructure. Includes engineering change orders, studies, and general research. Addresses and resolves DMS issues.</p> <p>FY 2023 Plans: Continue to develop aircraft and ground based infrastructure to improve mission capable rates and reduce reliability and maintainability costs. Includes addressing and resolving DMS issues.</p> <p>FY 2024 Plans: Continue to develop aircraft and ground based infrastructure to improve mission capable rates and reduce reliability and maintainability costs. Includes addressing and resolving DMS issues.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Continue reliability and maintainability efforts.</p>		0.100	0.100	0.100
<p>Title: Test Support</p>		0.200	0.100	0.100

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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>Description: Provides support for, but is not limited to, activities for MQ-9 testing of weapon system hardware/software testing in accordance with (IAW) contract standards, developmental testing of new capabilities, and R&M upgrades.</p> <p>FY 2023 Plans: Continues to provide government agencies support for MQ-9 testing to include continued acceptance testing of weapon system hardware/software IAW with contract standards, developmental testing of new capabilities, and R&M improvements.</p> <p>FY 2024 Plans: Continues to provide government agencies support for MQ-9 testing to include continued acceptance testing of weapon system hardware/software IAW with contract standards, developmental testing of new capabilities, and R&M improvements.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Continue MQ-9 test support efforts.</p>				
<p>Title: Communications</p> <p>Description: Develops communications capabilities such as, but not limited to, network systems managers, SATCOM, and relay site upgrades. Includes drafting technical orders and support documentation, training materials, production drawings, and retrofit acceptance plans (e.g., Bandwidth Efficient Common Data Link (BE-CDL) Secure Voice Multi Level Security (MLS), ARC-210 Guard Squelch, and Secure Communications).</p> <p>FY 2023 Plans: Continue to develop communications capabilities on encrypted data links, terminal, command and control, ISR transmission, GCS communications, SATCOM, integrated IP-based network interfaces, primary data links, network system managers, operational durability, remote split operations, and support equipment. Also includes associated technical orders and flight manuals.</p> <p>FY 2024 Plans: Continue to develop communications capabilities on encrypted data links, terminal, command and control, ISR transmission, GCS communications, SATCOM, integrated IP-based network interfaces, primary data links, network system managers, operational durability, remote split operations, and support equipment. Also includes associated technical orders and flight manuals.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Continue development of communications capabilities.</p>		0.100	0.100	0.100
<p>Title: Concept Exploration</p> <p>Description: Includes but is not limited to concept exploration to support Multi-Role UAS capabilities in a contested environment.</p> <p>FY 2023 Plans:</p>		4.125	23.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<p>Explores concepts for a potential next-generation, multi-role UAS capabilities. Includes program planning; analysis of requirements, threat environments, and existing capability shortfalls; may include risk reduction studies and development to include assessments or prototype development. To include subsystem exploration and prototype development to explore, but not limited to, Disaggregated Airborne Moving Target Indication (AMTI), Ground Moving Target Indication (GMTI), electronic spectrum awareness, communication systems, command and control technology, artificial intelligence/machine learning (AI/ML), electro/optical systems, and other data link technology. This effort does not establish a new UAS Program of Record.</p> <p>FY 2024 Plans: Concept exploration is currently planned to be complete.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Concept exploration is currently planned to be complete.</p>			
<p>Title: Operator Simulator</p> <p>Description: Develop operator simulators for training and perform updates to keep operator simulators current with the aircraft and GCSs. Operator Simulator also includes, but is not limited to: JUONs, UONs, and support for emerging AFSOC configurations.</p> <p>FY 2024 Plans: Funding increased to implement updates to keep the operator simulator current with the aircraft and GCSs under SLAM program.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased to implement updates to keep the operator simulator current with the aircraft and GCSs under SLAM program.</p>	-	-	0.100
Accomplishments/Planned Programs Subtotals	33.786	92.898	80.846

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 06 PRDTB1: MQ-9	18.451	14.078	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	32.529
• APAF 05 PRDTB2: MQ-9 Mods	72.869	211.507	98.063	0.000	98.063	12.328	12.178	29.233	29.841	0.000	466.019

Remarks
PMA costs are included in Other Government Costs.

D. Acquisition Strategy
Acquisition of MQ-9 SLAM is accomplished via sole-source contracts with General Atomics-ASI, Raytheon, and L-3 Communications, prime contractors, and United States Government (USG) Labs. Management of development and fielding of new capabilities will be through an Agile Acquisition Strategy that combines the rigor of

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an event driven development process (referred to as a Technology Maturation Effort (TME)) with the expedited delivery of a schedule driven integration and fielding process. This will allow continued baseline improvements while rapidly integrating limited urgent needs.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MQ-9 SLAM	SS/CPAF	GA-ASI : Poway, CA	0.000	21.733	Nov 2021	58.118	Nov 2022	66.787	Nov 2023	-		66.787	196.236	342.874	-
Reliability and Maintainability	SS/CPAF	GA-ASI : Poway, CA	0.000	0.100	Nov 2021	0.100	Nov 2022	0.100	Nov 2023	-		0.100	2.722	3.022	-
Communications	SS/CPAF	GA-ASI : Poway, CA	0.000	0.100	Jan 2022	0.100	Jan 2023	0.100	Jan 2024	-		0.100	0.934	1.234	-
Concept Exploration	Various	Various : Various	0.000	4.125	Mar 2022	23.000	Mar 2023	0.000	Mar 2024	-		0.000	0.000	27.125	-
Operator Simulator	MIPR	Various : Huntsville, AL	0.000	-		0.100	Jan 2023	0.100	Jan 2024	-		0.100	0.000	0.200	-
Subtotal			0.000	26.058		81.418		67.087		-		67.087	199.892	374.455	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	Various	Various : Various	0.000	0.200	Jun 2022	0.100	Jun 2023	0.100	Jun 2024	-		0.100	1.655	2.055	-
Subtotal			0.000	0.200		0.100		0.100		-		0.100	1.655	2.055	N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Other Government Costs	Various	Various : Various	0.000	7.528	Apr 2022	11.380	Apr 2023	13.659	Apr 2024	-		13.659	40.524	73.091	-
Subtotal			0.000	7.528		11.380		13.659		-		13.659	40.524	73.091	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	33.786	92.898	80.846	-	80.846	242.071	449.601	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

MQ-9 SLAM	
MQ-9 SLAM	
Reliability and Maintainability	
Communications	
Test Support	
Concept Exploration	
Operator Simulator	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675212 / MQ-9 SLAM

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MQ-9 SLAM				
MQ-9 SLAM	1	2022	4	2028
Reliability and Maintainability	1	2022	4	2028
Communications	2	2022	4	2028
Test Support	3	2022	4	2028
Concept Exploration	3	2022	4	2024
Operator Simulator	1	2024	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675247: <i>Squadron Operations Centers (SOC)</i>	0.000	0.135	0.268	0.277	0.000	0.277	0.259	0.296	0.302	0.314	1.053	2.904
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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 defines component standards, develops and stands up a SOC Systems Integration Lab (SIL), and integrates new technologies to maintain currency with technological and platform advancements.

RPA SOC RDT&E funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs.

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 element 0605831F.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024
Title: Squadron Operations Center	0.135	0.268	0.277
<p>Description: Development of a SOC common to Air Combat Command (ACC), Air Force Special Operations Command (AFSOC), and Air National Guard (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.</p> <p>FY 2023 Plans: Necessary for Developmental/Operational Testing of the DT/OT SOC which is required to develop and test new technologies to remain up to date with technological and platform advancements.</p> <p>FY 2024 Plans: Necessary for the continued Developmental/Operational Testing of the DT/OT SOC. This is required to develop and test new technologies to enable the Squadron Operation Centers to remain up to date with technological and platform advancements for use throughout the enterprise.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>			

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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675247 / Squadron Operations Centers (SOC)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Small increase of \$0.009M in requirement due to inflationary pressures of required items being developed and tested in the DT/OT SOC.			
Accomplishments/Planned Programs Subtotals	0.135	0.268	0.277

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024	FY 2024	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPAF 03 Line Item 837300: <i>Base Communications Infrastructure</i>	92.326	11.451	0.000	-	0.000	0.000	0.000	-	-	0.000	103.777

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 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 Developmental Testing (DT) SOC will be used to further enhance the program's ability to update future RPA-SOC modernization efforts.

Due to an administrative error, FY22 was entered into the system incorrectly, should reflect 70.37M with a 4M BTR for total of 66.37M.
Due to an administrative error, FY23 was entered into the system incorrectly, should reflect 6.401M.

Will be corrected in future updates, as possible.

D. Acquisition Strategy

AFLCMC/WII manages the SOC Program for ACC, AFSOC, and ANG through organic development at the 577 Software Engineering Squadron (SWES) / 578 SWES, and hardware/software procurement utilizing the installation contractor.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

DT/OT SOC Development , Testing, Installation and Maintenance

DT/OT SOC



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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>DT/OT SOC Development , Testing, Installation and Maintenance</i>				
DT/OT SOC	2	2022	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force										Date: March 2023		
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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
675249: MQ-9 Upgrade	0.000	42.926	52.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	95.259
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MQ-9 Upgrade Program develops and integrates improvements for existing systems and fields 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 measures for integration into the MQ-9 fleet. Per the Candidate Capability List (CCL) signed on 30 August 2022, capabilities may include, but are not limited to, efforts to reduce system configurations; enable battlespace integration; implement open architecture; enable Command and Control and mission resiliency; mitigate Diminishing Manufacturing Sources and Material Shortages (DMSMS) through planned technology upgrades; enable airspace integration; increase weather tolerance; enable airborne situational awareness; enable operations in a contested environment; improve cybersecurity resilience; improve reliability and maintainability; increase lethality; improve the human machine interface to enhance the user experience; and improve readiness.

*Indicates efforts and solutions in support of the modernization MQ-9 Multi-Domain Operations (M2DO) configuration.

Activities also include studies, analysis, simulations, demonstrations, prototyping, and testing. The Upgrade Program may use subject matter experts and agencies to develop and test MQ-9 system capabilities and make improvements to System Integration Laboratory (SIL)/ Hardware in the Loop Laboratory (HILL) and Detachment 3 (Det 3).

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 element 0605831F.

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

Where appropriate, there will be cost sharing on joint efforts that are required by all programs to support new capabilities.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2022	FY 2023	FY 2024
Title: MQ-9 Upgrade	40.029	52.133	0.000
Description: Develop and integrate upgrade capabilities in 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 include, but are not limited to, upgrades of existing aircraft, Ground Control Stations (GCSs), communication capabilities, payload systems, and the Multi-Spectral Targeting System (MTS-B).			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023		
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 2022	FY 2023	FY 2024
<p>Upgrade capabilities also include software updates, the addition of new capabilities and subsystems, and the resolution of DMS issues.</p> <p>Candidate capabilities are determined by Major Command (Air Combat Command (ACC), Air Force Special Operations Command (AFSOC)) direction and inputs that included Joint Urgent Operational Need (JUON) and Urgent Operational Need (UON) requests.</p> <p>Activities also include, but are not limited to, operator simulators, reliability and maintainability, test support, communications, and urgent services.</p> <p>There will be cost sharing on development, where appropriate, on joint efforts that are required by all programs to support the new capabilities.</p> <p>FY 2023 Plans: M2DO capability upgrades for resilient C2, Link-16, and autonomy. Continue TME developing upgrade capabilities in conjunction with the CCL to include, but not limited to:</p> <ul style="list-style-type: none"> • Secure communications • Improvements to system security and the ability to self-protect through Ku or GPS jamming, data encryption, and IFF <p>FY 2024 Plans: MQ-9 Upgrade Program is complete</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: MQ-9 Upgrade Program is complete</p>				
<p>Title: Operator Simulator</p> <p>Description: Develop operator simulators for training and perform updates to keep operator simulators current with the aircraft and GCSs. Operator Simulator also includes, but is not limited to: JUONs, UONs, and support for emerging AFSOC configurations.</p> <p>FY 2023 Plans: Continue implementing updates to keep the operator simulator current with the aircraft and GCSs.</p> <p>FY 2024 Plans: MQ-9 Upgrade Program is complete</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement:</p>		1.100	0.100	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force	Date: March 2023
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
MQ-9 Upgrade Program is complete			
Title: Test Support	1.697	0.100	0.000
Description: MQ-9 Upgrade testing provides support including, but not limited to: activities for MQ-9 testing of weapon system hardware and software IAW contract standards, developmental testing of new capabilities, and R&M upgrades.			
FY 2023 Plans: Continue implementing updates to keep the operator simulator current with the aircraft and GCSs.			
FY 2024 Plans: MQ-9 Upgrade Program is complete			
FY 2023 to FY 2024 Increase/Decrease Statement: MQ-9 Upgrade Program is complete			
Title: Communications	0.100	0.000	0.000
Description: Develop MQ-9 communications capabilities including, but not limited to: network system managers, SATCOM, and relay site upgrades. MQ-9 Upgrade Communications also includes drafting technical orders, support documentation, training materials, production drawings, and retrofit acceptance plans (i.e., BE CDL, Secure Voice Multi-Level Security (MLS), ARC-210 Guard Squelch, and Secure Communications).			
FY 2023 Plans: MQ-9 Upgrade communications capabilities development is complete.			
FY 2024 Plans: MQ-9 Upgrade Program is complete			
FY 2023 to FY 2024 Increase/Decrease Statement: MQ-9 Upgrade Program is complete			
Accomplishments/Planned Programs Subtotals	42.926	52.333	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 06 PRDTB1: MQ-9 UAV	18.451	14.078	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	32.529
• APAF 05 PRDTB2: MQ-9 Mods	72.869	211.507	98.063	-	98.063	12.328	12.178	29.233	29.841	0.000	466.019

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

PMA costs are included in Other Government Costs.

D. Acquisition Strategy

Acquisition of MQ-9 Upgrade is accomplished via sole-source contracts with General Atomics-ASI, Raytheon, and L-3 Communications, prime contractors, and Other Government Agencies. Management of development and fielding of new capabilities will be through an Agile Acquisition Strategy that combines the rigor of an event driven development process (referred to as a Technology Maturation Effort (TME)) with the expedited delivery of a schedule driven integration and fielding process. This will allow continued baseline improvements while rapidly integrating limited urgent needs fleet-wide.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
MQ-9 Upgrade	SS/CPFF	GA-ASI : Poway, CA	0.000	40.029	Jan 2022	52.133	Jan 2023	-		-		-	0.000	92.162	-
Operator Simulator	MIPR	Various : Huntsville, AL	0.000	1.100	Jan 2022	0.100	Jan 2023	-		-		-	0.000	1.200	-
Communications	SS/CPFF	GA-ASI : Poway, CA	0.000	0.100		-		-		-		-	0.000	0.100	-
Subtotal			0.000	41.229		52.233		-		-		-	0.000	93.462	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	Various	Various : Various	0.000	1.697	Nov 2021	0.100	Nov 2022	-		-		-	0.000	1.797	-
Subtotal			0.000	1.697		0.100		-		-		-	0.000	1.797	N/A

			Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	42.926	52.333	-	-	-	0.000	95.259	N/A

Remarks
PMA costs are included in Other Government Costs.

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0205219F / MQ-9 UAV	Project (Number/Name) 675249 / MQ-9 Upgrade
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

MQ-9 ACAT II Development	
MQ-9 Upgrade	
Operator Simulator	
Test Support	
Communications	

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
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

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MQ-9 ACAT II Development</i>				
MQ-9 Upgrade	1	2022	4	2023
Operator Simulator	1	2022	4	2023
Test Support	1	2022	4	2023
Communications	1	2022	4	2022