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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 I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305220F / RQ-4 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	866.534	244.807	214.849	221.690	0.000	221.690	214.272	168.472	154.523	157.748	Continuing	Continuing
675145: RQ-4 Block 30	364.419	123.237	35.030	25.950	0.000	25.950	30.761	27.490	25.913	26.384	0.000	659.184
675146: RQ-4 Block 40	174.036	0.089	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	174.264
675149: RQ-4 Capability Enhancements	0.000	114.013	167.745	195.739	0.000	195.739	178.390	140.982	128.610	131.364	Continuing	Continuing
67RTIP: MP-RTIP	242.704	7.468	11.935	0.001	0.000	0.001	5.121	0.000	0.000	0.000	0.000	267.229
Program MDAP/MAIS Code: 252 Project MDAP/MAIS Code(s): 293												
⁽⁺⁾ The sum of all Prior Years is \$85.375 million less than the represented total due to several projects ending												
Note The sum of all Prior Years is actually \$2031.377 million more than the represented total due to several projects ending.												
A. Mission Description and Budget Item Justification This program element funds related Air Force projects sharing the RQ-4 platform in common: the RQ-4 Block 30, the RQ-4 Block 40, the RQ-4 Ground Segment/Communication System, RQ-4 Capability Enhancements, and Multi-Platform Radar Technology Insertion Program (MP-RTIP). The RQ-4 Block 30, Block 40, and Ground Segment/Communications Segment projects support the development and testing of the baseline ACAT 1C RQ-4 capability and the initiation of the major modernization ACAT programs. The majority of modernization funding was transferred to the Capability Enhancements project to support upgrades and modifications to the fielded RQ-4 weapon system to meet evolving threats and warfighter requirements. The MP-RTIP project completes development and testing of the baseline MDAP MP-RTIP sensor capability. When judged feasible and affordable, this program will participate in the development, testing, and implementation of international standards to enhance joint, allied, and coalition interoperability. Studies and activities may be initiated to further explore the utility of incorporating the emerging architectural standards such as the USAF Unmanned Aerial System (UAS) Command and Control Initiative (UCI) or the DoD's Unmanned Control Segment standards (UCS) and Open Mission Systems (OMS). Ground Segment Modernization Program (GSMP) and Communication System Modernization Program (CSMP) will incorporate UCI and UCS standards. Per direction of USD(AT&L), the RQ-4 program was restructured from the original project 675144 (Baseline) into multiple projects: (1) Block 30, (2) Block 40, (3) GroundSegment/Communications System, and (4) Common-Airborne Sense and Avoid (C-ABSAA). In FY17 the Ground Segment/Communications System project (675147) ended. Prior year funds in the amount of \$2031.377M were accounted for in project 675144 and \$85.375M were accounted for in project 675147.												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force **Date:** February 2018

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 0305220F / RQ-4 UAV
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This program element may include necessary civilian pay expenses required to manage, execute, and deliver RQ-4 UAV 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.

The FY2017 funding was reduced by \$11.500 million to account for the availability of prior year execution balances.

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	256.307	214.849	227.143	0.000	227.143
Current President's Budget	244.807	214.849	221.690	0.000	221.690
Total Adjustments	-11.500	0.000	-5.453	0.000	-5.453
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	-11.500	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-5.453	0.000	-5.453

Change Summary Explanation

-FY17 \$11.500M decrease: Reduction due to forward financing.

-FY19 \$5.453M decrease: Air Force directed changes for under execution and for realignment within RQ-4 program.

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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 0305220F / RQ-4 UAV				Project (Number/Name) 675145 / RQ-4 Block 30			
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
675145: RQ-4 Block 30	364.419	123.237	35.030	25.950	0.000	25.950	30.761	27.490	25.913	26.384	0.000	659.184
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The RQ-4 Block 30 Project was directed by an Acquisition Decision Memorandum (ADM) signed 14 Jun 2011 by USD (AT&L). At the time of the ADM signature, and subsequent designation of projects, budgets had already been finalized. Prior budgets for all projects are captured under the RQ-4 Baseline project, as its related Project (675144) was the core project for the RQ-4 program prior to the directed restructure.

A. Mission Description and Budget Item Justification

The RQ-4 Remotely Piloted Aircraft (RPA) provides a high altitude, deep look, long-endurance Intelligence, Surveillance, and Reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios. RDT&E funding in this project supports design, development, integration, and testing of capabilities needed to meet validated requirements for Block 30 aircraft, including continuing aircraft system upgrade for Enhanced Integrated Sensor Suite (EISS) sensors, the Airborne Signals Intelligence Payload (ASIP), and alternate sensor payloads.

This funding also supports aircraft systems upgrades to include continuing airframe updates, aircraft operations surety, cybersecurity, airspace and interoperability enhancements, information assurance, and mission critical repair of Government Furnished Equipment (GFE).

Activities include mission planning interoperability enhancements, weather capability enhancements and testing, airspace and interoperability enhancements and updates, airframe and software upgrades and deficiency report resolution across RQ-4 fleet, periodic Operational Flight Program updates and releases, sensor interoperability and communication enhancements and alternate sensor upgrades, upgrades to ASIP Signals Intelligence (SIGINT) sensor, Identification Friend or Foe (IFF) Mode 5 Automatic Dependent Surveillance-Broadcast (ADS-B) development and testing, development and testing activities associated with enhancing sensor capability and sensor integration, integration of alternate sensors, development and testing of ice protection system, support of demonstration/development and technology insertion, and studies and analysis supporting future system enhancements.

This project supports system engineering/program management, test and evaluation, management services, and fielding support for all RQ-4 projects. This reflects contracting/acquisition strategy for these common elements within the Global Hawk program to provide efficiencies.

The RQ-4 program will maintain and upgrade interoperability for Blocks 20/30/40 with system of systems partners and continue to incorporate applicable synergies with other platforms such as the U.S. Navy's Triton, other RPA weapon systems, and Processing, Exploration & Dissemination (PED) elements. The networking capability for intelligence dissemination is required to provide the data transport interface between the Weapons System, Operations Centers, and external Intelligence Community customers.

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30		
<p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver RQ-4 UAV 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.</p> <p>This program will participate in the development, testing, and implementation of international standards to enhance joint, allied, and coalition interoperability. Likewise, studies and activities will be initiated to further explore the utility of incorporating the emerging architectural standards such as the USAF Unmanned Aerial System (UAS) Command and Control Initiative (UCI), the DoD's Unmanned Control Segment standards (UCS), or Open Mission Systems (OMS) as well as technology insertion activities in support of Better Buying Power (BBP).</p>					
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2017	FY 2018	FY 2019
<p>Title: RQ-4 Block 30 Development and Demonstration</p> <p>Description: Global Hawk Unmanned Aerial Vehicle Development and Demonstration includes enterprise management, test and evaluation, software integration, and fielding support for all RQ-4 projects as well as periodic Operational Flight Program updates and releases, studies and analysis supporting future system enhancements.</p> <p>FY 2018 Plans:</p> <ul style="list-style-type: none">- Continue upgrades to ASIP SIGINT and EISS sensors- Continue airspace integration activities including IFF Mode 5/ADS-B, comm interoperability and upgrades, cybersecurity and information assurance and reliability & maintainability, and associated testing- Conduct Block 40 enhanced weather capability testing- Continue development of Operational Flight Program updates- Continue risk reduction and analysis of ice protection system <p>FY 2019 Plans:</p> <ul style="list-style-type: none">- Will continue upgrades to ASIP SIGINT and EISS sensors- Will continue airspace integration activities including comm interoperability and upgrades, cybersecurity and information assurance and reliability & maintainability, and associated testing- Will conduct Battlefield Airborne Communication Node enhanced weather capability testing <p>FY 2018 to FY 2019 Increase/Decrease Statement:</p> <p>Funding in this effort continues to decrease as the program transitions modernization into separate Accomplishments/Planned Programs in FY19.</p>			66.642	24.980	10.795
<p>Title: RQ-4 MS-177 Sensor Integration</p> <p>Description: Integration of MS-177 multispectral sensor into Block 30</p> <p>FY 2018 Plans:</p>			36.182	0.000	0.000

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Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV		Project (Number/Name) 675145 / RQ-4 Block 30	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2017	FY 2018	FY 2019
- Continue in project 675149					
FY 2019 Plans: - N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: N/A					
Title: RQ-4 Infrastructure Description: RQ-4 Infrastructure includes systems engineering, program management, test and evaluation, and fielding support for all RQ-4 projects as well as periodic Operational Flight Program updates and releases, studies, development testing, and Other Government Costs (OGC). This funding was previously included in the RQ-4 Block 30 Development and Demonstration and Block 30 Government Test and Non-Prime Support Accomplishments/Planned Programs. FY 2018 Plans: -N/A FY 2019 Plans: - Will continue development of Operational Flight Program updates - Will continue program test activities - Will continue non-prime engineering and technical support and Other Government Costs FY 2018 to FY 2019 Increase/Decrease Statement: In FY19, as program transitions into modernization, Global Hawk flight test and system engineering/program management within infrastructure transitions into its own effort and will be contracted in conjunction with capability development.			0.000	0.000	14.733
Title: Block 30 Government Test and Non-Prime Support Description: Government test, non-prime technical support and Other Government Costs (OGC) -- Funding supports RQ-4 development testing at the 412 Test Wing at Edwards AFB, CA as well as for support from Air Force Operational Test and Evaluation Center (AFOTEC), Joint Interoperability Test Command (JITC), Distributed Common Ground System (DCGS), other interoperability partners and OGC. FY 2018 Plans: - Continue government test - Continue non-prime engineering and technical support and Other Government Costs FY 2019 Plans:			20.413	10.050	0.422

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Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675145 / RQ-4 Block 30				
B. Accomplishments/Planned Programs (\$ in Millions)										FY 2017	FY 2018	FY 2019
- Will continue non-prime engineering and technical support and Other Government Costs												
FY 2018 to FY 2019 Increase/Decrease Statement: Funding in this effort continues to decrease as the program transitions modernization into separate Accomplishments/Planned Programs in FY19. This funding supports remaining OGCs asserted with core program.												
Accomplishments/Planned Programs Subtotals										123.237	35.030	25.950
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 HAEUAV: RQ-4	6.488	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.488	
• APAF 05 Line Item HAWK00: RQ-4 Mods	32.045	43.968	23.715	-	23.715	4.851	126.340	117.382	106.166	89.085	543.552	
• APAF 07 Line Item RQ4DIS: RQ-4 Post Production Support	0.099	86.695	40.641	-	40.641	130.625	17.428	15.419	15.699	8.364	314.970	
• OPAF 03 Line Item 832070: Intelligence Comm Equipment	0.000	0.000	21.269	-	21.269	9.826	0.000	0.000	0.000	0.000	31.095	
Remarks												
D. Acquisition Strategy												
The RQ-4 program uses an evolutionary acquisition strategy to provide the warfighter with a near-term combat capability with increased time-phased capability improvements as technology and risk achieve satisfactory levels. Northrop Grumman Corporation is the prime contractor. A suite of contract vehicles is used for development efforts: primarily, Indefinite Delivery, Indefinite Quantity (IDIQ) contracts cover development, system upgrade, production, retrofit, fielding, and sustainment efforts. MS-177 Sensor Enhancement RDT&E is being contracted directly with the Original Equipment Manufacturer (OEM), United Technology Corporation Aerospace Systems (UTAS).												
The program successfully completed Milestone (MS) C in February 2015 and is transitioning core program activities to the Operations and Support phase of the Defense Acquisition System over the next several years. Future required capabilities beyond the core Acquisition Category (ACAT) IC RQ-4 program will be completed as separate ACAT II and ACAT III modification programs.												
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.												

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30
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Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Global Hawk Engineering Manufacturing and Development	SS/ Various	Northrop Grumman Integrated Systems : San Diego, CA	240.188	66.642	May 2017	24.980	Jul 2018	10.795	May 2019	-		10.795	29.750	372.355	372.355
RQ-4 MS-177 Sensor Integration	SS/ Various	Various : Various	86.086	36.182	Feb 2017	-		-		-		-	0.000	122.268	264.808
RQ-4 Infrastructure	Various	Various : Various	0.000	-		-		9.570	May 2019	-		9.570	77.768	87.338	238.615
Subtotal			326.274	102.824		24.980		20.365		-		20.365	107.518	581.961	N/A

Remarks

Target Value of the Global Hawk EMD, IDIQ, and EPIC Contracts are not segregated by Budget Project Number.
 Target Value of MS-177 contract includes \$142.539M of funding in Budget Project Number 675149, RQ-4 Capability Enhancements.
 Target Value of RQ-4 Infrastructure includes \$151.278M of funding in Budget Project Number 675149, RQ-4 Capability Enhancements.

Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Non Prime Technical Support	Various	Various : Dayton, OH	2.655	0.383	Jan 2017	0.396	Jan 2018	-		-		-	0.000	3.434	3.434
Subtotal			2.655	0.383		0.396		-		-		-	0.000	3.434	N/A

Remarks

Target Value of the Global Hawk effort is not segregated by Budget Project Number.

Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test & Evaluation	MIPR	412 TW : Edwards AFB, CA	21.606	19.020	Oct 2016	6.338	Oct 2017	5.163	Oct 2018	-		5.163	0.000	52.127	52.127
Subtotal			21.606	19.020		6.338		5.163		-		5.163	0.000	52.127	N/A

Remarks

Target Value of the Global Hawk effort is not segregated by Budget Project Number.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force	Date: February 2018
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30
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Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA: A&AS	Various	Various : Dayton, OH	10.347	0.735	Nov 2016	2.315	Nov 2017	0.349	Nov 2018	-		0.349	2.803	16.549	16.549
PMA: Other Government Costs	Various	Various : Dayton, OH	3.537	0.275	Oct 2016	1.001	Oct 2017	0.073	Oct 2018	-		0.073	0.227	5.113	5.113
Subtotal			13.884	1.010		3.316		0.422		-		0.422	3.030	21.662	N/A

Remarks
Target Value of the Global Hawk effort is not segregated by Budget Project Number.

	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	364.419	123.237		35.030		25.950		-		25.950	110.548	659.184	N/A

Remarks

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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 0305220F / RQ-4 UAV

Project (Number/Name)

675145 / RQ-4 Block 30

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
RQ-4 Block 30																												
Enhanced Weather Capability Development																												
Mode 5/ADS-B Development																												
ASIP Inc 1 Development																												
Mission Planning Development																												
Sensor Enhancements & Upgrades (MS-177) Development																												
Operational Flight Program Updates & Releases																												
Test Support																												
RQ-4 Infrastructure & Test																												

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
RQ-4 Block 30				
Enhanced Weather Capability Development	1	2017	1	2019
Mode 5/ADS-B Development	1	2017	2	2019
ASIP Inc 1 Development	1	2017	1	2019
Mission Planning Development	1	2017	1	2018
Sensor Enhancements & Upgrades (MS-177) Development	1	2017	4	2017
Operational Flight Program Updates & Releases	3	2017	2	2019
Test Support	1	2017	4	2018
RQ-4 Infrastructure & Test	1	2019	4	2023

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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 0305220F / RQ-4 UAV				Project (Number/Name) 675146 / RQ-4 Block 40			
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
675146: RQ-4 Block 40	174.036	0.089	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	174.264
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The RQ-4 Block 40 Project was directed by an Acquisition Decision Memorandum (ADM) signed 14 Jun 2011 by USD (AT&L). At the time of the ADM signature, and subsequent designation of projects, budgets had already been finalized. Prior budgets for all projects are captured under the RQ-4 Baseline project, as its related Project (675144) was the core project for the RQ-4 program prior to the directed restructure.

In FY 2019, PE 0305220F, RQ-4 UAV, Project 675146, RQ-4 Block 40, efforts were transferred to PE 0305220F, RQ-4 UAV, Project 675149, RQ-4 Capability Enhancements, in order to allow greater visibility into Global Hawk modernization efforts.

A. Mission Description and Budget Item Justification

The RQ-4 Remotely Piloted Aircraft (RPA) provides a high altitude, deep look, long-endurance Intelligence, Surveillance, and Reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios.

RDT&E funding in this project supports design, development, integration, and testing of items needed to meet validated requirements for Block 40 aircraft, including further development, creation of additional radar modes, integration and test of the Multi-Platform Radar Technology Insertion Program (MP-RTIP) sensor capabilities. The Block 40 program provides critical Synthetic Aperture Radar (SAR) and Ground Moving Target Indicator (GMTI) data to the warfighter. This funding also supports continued aircraft/communications systems upgrade to include Identification Friend or Foe (IFF) Mode 5/ADS-B, mission planning upgrade development and testing, airspace and interoperability and communication enhancements and updates, periodic Operational Flight Program updates and releases, enhanced weather capability, development and testing of ice protection system, additional radar modes, sensor enhancements, reliability and maintainability improvements, and support of demonstration and technology insertion. Funding continues RQ-4 unique development and integration of upgraded capabilities.

This program will participate in the development, testing, and implementation of international standards to enhance joint, allied, and coalition interoperability. Likewise, studies and activities will be initiated to further explore the utility of incorporating the emerging architectural standards such as the USAF Unmanned Aerial System (UAS) Command and Control Initiative (UCI), the DoD's Unmanned Control Segment standards (UCS), or Open Mission Systems (OMS) as well as technology insertion activities in support of Better Buying Power (BBP).

The RQ-4 program will maintain capability and interoperability for Block 40 including efforts with system of systems partners and continue to incorporate applicable synergies with other platforms, such as the U.S. Navy's Triton, other RPA weapon systems, and Processing, Exploitation & Dissemination (PED) elements.

Activities also include studies and analysis, support to future system enhancements, communication and interoperability enhancements, current and future program planning, and project execution.

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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40	

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2017	FY 2018	FY 2019
Title: RQ-4 Block 40 Development and Demonstration	0.089	0.139	0.000
Description: RQ-4 Block 40 Payload and Aircraft/Communications Development and Demonstration as well as periodic Operational Flight Program updates and releases			
FY 2018 Plans: - Complete funding of airspace integration of IFF Mode 5/ADS-B			
FY 2019 Plans: - N/A			
FY 2018 to FY 2019 Increase/Decrease Statement: Efforts have been transferred to Program 0305220F, RQ-4, Project 675149, Capability Enhancements			
Accomplishments/Planned Programs Subtotals	0.089	0.139	0.000

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

<u>Line Item</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u> <u>Base</u>	<u>FY 2019</u> <u>OCO</u>	<u>FY 2019</u> <u>Total</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 04 Line Item HAEUAV: RQ-4	6.488	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.488
• APAF 05 Line Item HAWK00: RQ-4 Mods	32.045	43.968	23.715	-	23.715	4.851	126.340	117.382	106.166	89.085	543.552
• APAF 07 Line Item RQ4DIS: RQ-4 Post Production Support	0.099	86.695	40.641	-	40.641	130.625	17.428	15.419	15.699	8.364	314.970
• OPAF 03 Line Item 832070: Intelligence Comm Equipment	0.000	0.000	21.269	-	21.269	9.826	0.000	0.000	0.000	0.000	31.095
• RDTE 07 PE 0305238F: NATO AGS	38.904	44.729	51.527	-	51.527	32.567	1.787	0.796	0.810	0.000	171.120

Remarks

D. Acquisition Strategy

The RQ-4 program uses an evolutionary acquisition strategy to provide the warfighter with a near-term combat capability with increased time-phased capability improvements as technology and risk achieve satisfactory levels. Northrop Grumman Corporation is the prime contractor. A suite of contract vehicles is used for development efforts: a legacy Engineering & Manufacturing Development (EMD) "C" contract is being phased out with the completion of current efforts; Indefinite Delivery, Indefinite Quantity (IDIQ) contracts cover development, upgrade, production, retrofit, fielding, and sustainment efforts.

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40	

The program successfully completed Milestone (MS) C in February 2015 and is transitioning core program activities to the Operations and Support phase of the Defense Acquisition System over the next several years. Future required capabilities beyond the core Acquisition Category (ACAT) IC RQ-4 program will be completed as separate ACAT II and ACAT III modification programs.

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.

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40
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Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Global Hawk Engineering Manufacturing and Development	SS/ Various	Northrop Grumman Integrated Systems : San Diego, CA	138.984	0.089	Nov 2016	0.139	Jan 2018	-		-		-	0.000	139.212	139.212
Subtotal			138.984	0.089		0.139		-		-		-	0.000	139.212	N/A

Remarks

Target Value of the RQ-4 EMD, IDIQ, and EPIC contracts are not segregated by Budget Project Number.

Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Non-Prime Technical Support	Various	Various : Dayton, OH	1.369	-		-		-		-		-	0.000	1.369	-
Subtotal			1.369	-		-		-		-		-	0.000	1.369	N/A

Remarks

Target Value of the Global Hawk effort is not segregated by Budget Project Number.

Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test & Evaluation	MIPR	412 TW : Edwards AFB, CA	23.231	-		-		-		-		-	0.000	23.231	-
Subtotal			23.231	-		-		-		-		-	0.000	23.231	N/A

Remarks

Target Value of the Global Hawk effort is not segregated by Budget Project Number.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force	Date: February 2018
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40
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Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA: A&AS	Various	Various : Dayton, OH	7.040	-		-		-		-		-	0.000	7.040	-
PMA: Other Gov't Cost	Various	Various : Dayton, OH	3.412	-		-		-		-		-	0.000	3.412	-
Subtotal			10.452	-		-		-		-		-	0.000	10.452	N/A

Remarks
Target Value of the Global Hawk effort is not segregated by Budget Project Number.

	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	174.036	0.089		0.139		-		-		-	0.000	174.264	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force	Date: February 2018
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40
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	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
RQ-4 Block 40																												
Block 40 FOC June 2017																												
Enhanced Weather Capability Development																												
Mode 5/ADS-B Development																												
Sensor Integration/Modes Development																												
Operational Flight Program Updates and Releases																												

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675146 / RQ-4 Block 40

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
RQ-4 Block 40				
Block 40 FOC June 2017	1	2017	4	2017
Enhanced Weather Capability Development	1	2017	4	2017
Mode 5/ADS-B Development	1	2017	2	2019
Sensor Integration/Modes Development	1	2017	4	2017
Operational Flight Program Updates and Releases	1	2017	4	2018

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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 0305220F / RQ-4 UAV				Project (Number/Name) 675149 / RQ-4 Capability Enhancements			
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
675149: RQ-4 Capability Enhancements	0.000	114.013	167.745	195.739	0.000	195.739	178.390	140.982	128.610	131.364	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
<p>The RQ-4 Remotely Piloted Aircraft (RPA) provides a high altitude, deep look, long-endurance Intelligence, Surveillance, and Reconnaissance (ISR) capability that complements space and other airborne collectors during peacetime, crisis, and war-fighting scenarios. RDT&E funding in this project supports design, development, integration, and testing of capabilities needed to meet validated requirements for RQ-4 aircraft, including continuing aircraft system upgrade for current and alternate sensor payloads.</p>												
<p>This funding supports aircraft systems upgrade to include continuing aircraft operations surety, cybersecurity, information assurance, and mission critical repair of Government Furnished Equipment (GFE). This will include systems engineering/program management, configuration and data management, test and evaluation, management services, DR/MIP Investigations, studies and analysis and fielding support for Block 30, Block 40, and Ground Segment/Comm System.</p>												
<p>Activities include airspace and interoperability and communication enhancements and updates, periodic Operational Flight Program updates and releases, airframe and software upgrades, deficiency report resolution across RQ-4 fleet, sensor enhancements and alternate sensor upgrades including the MS-177 and the Optical Bar Camera (OBC), enhanced comms capabilities, support for demonstration and technology insertion, development and testing of ice protection system, enhanced mission flexibility to accommodate changes to mission objectives inflight, enhancements to support multi-domain contested environment operations, and studies and analysis supporting future system enhancements. Additionally, this project supports design, development, integration, and testing of items needed to meet validated requirements for Block 20/30/40 aircraft, including further development, mode creation, integration and test of the Multi-Platform Radar Technology Insertion Program (MP-RTIP) sensor capabilities, continued aircraft/communications systems upgrade, additional radar modes, reliability and maintainability improvements, Ground Segment Modernization Program (GSMP) and Communication System Modernization Program (CSMP) efforts, as well as next generation communications capabilities. GSMP resolves fleet grounding Diminishing Manufacturing Sources (DMS) and obsolescence issues associated with ground segment equipment and provides critical warfighter capabilities such as building-based multi-aircraft control. It will also enhance interoperability data dissemination as well as provide training capability. CSMP resolves critical DMS and obsolescence issues in the RQ-4 communication infrastructure and provides enhancements across the RQ-4 communication network.</p>												
<p>RDT&E funding in this project also supports design, development, integration and testing of the weapon system's legacy ground elements and communications capabilities to enhance functionality and maintain interoperability prior to GSMP/CSMP fielding. The ground segment currently includes the Mission Control Elements (MCE), the Launch and Recovery Elements (LRE), and the networking resources required to simultaneously disseminate intelligence information while remaining compliant with DoD cybersecurity network requirements to operate on the Global Information Grid.</p>												
<p>This project supports system engineering/program management, test and evaluation, management services and fielding support for all RQ-4 projects. This reflects contracting/acquisition strategy for these common elements within the Global Hawk program to provide efficiencies.</p>												

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements		
<p>The RQ-4 program will maintain and upgrade interoperability for Blocks 20/30/40 with system of systems partners and continue to incorporate applicable synergies with other platforms such as the U.S. Navy's Triton, other RPA weapon systems, and Processing, Exploitation & Dissemination (PED) elements. The networking capability for intelligence dissemination is required to provide the data transport interface between the Weapons System, Operations Centers, and external Intelligence Community customers.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver RQ-4 UAV 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.</p> <p>This program will participate in the development, testing, and implementation of international standards to enhance joint, allied, and coalition interoperability. Likewise, studies and activities will be initiated to further explore the utility of incorporating the emerging architectural standards such as the USAF Unmanned Aerial System (UAS) Command and Control Initiative (UCI), the DoD's Unmanned Control Segment standards (UCS), or Open Mission Systems (OMS) as well as technology insertion activities in support of Better Buying Power (BBP).</p>					
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2017	FY 2018	FY 2019
Title: RQ-4 Capability Enhancements			13.622	90.135	13.546
Description: RQ-4 Development and Demonstration (includes development, system integration, software integration, development test, and fielding support for RQ-4 projects as well as studies and analysis supporting future system enhancements). Also supports RQ-4 development testing at the 412 Test Wing at Edwards AFB, CA and also includes funding for support from Air Force Operational Test and Evaluation Center (AFOTEC), Joint Interoperability Test Command (JITC), Distributed Common Ground System (DCGS), other interoperability partners and Other Government Costs (OGC).					
FY 2018 Plans:					
- Conduct airspace integration activities, integration of advanced sensors, utilization of additional radar modes, and comms system enhancements					
- Conduct risk reduction and analysis of ice protection solutions, continued system interoperability and upgrades, cybersecurity and information assurance and reliability & maintainability, and associated testing					
- Continue development and testing of alternate sensors and upgrades					
- Continue development to integrate Radar Software Development (RSD) 1.5 software build into Block 40 Program					
- Continue development of radar capabilities to include Maritime Modes Integration					
- Continue government test and non-prime engineering and technical support and OGC					
FY 2019 Plans:					
- Will conduct risk reduction and analysis of ice protection solutions, continued system interoperability and upgrades, cybersecurity and information assurance and reliability & maintainability, and associated testing					
- Will conduct Communication System Modernization Program (CSMP) pre-contract activities and establish as a formal program					

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
- Will Continue government test and non-prime engineering and technical support and OGC			
FY 2018 to FY 2019 Increase/Decrease Statement: Funding in FY19 decreased in accordance with program office estimate for future capability development.			
Title: Integrated Functional Capability 9 (IFC 9) Description: IFCs are periodic hardware and software capability, releases similar to an Operational Flight Program (OFP). IFC 9 provides (Optical Bar Camera (OBC), Nose Wheel Steering enhancement, in flight Waypoint Modification as well as numerous software enhancement and deficiency resolutions, and Other Government Costs (OGC). FY 2018 Plans: - N/A FY 2019 Plans: - Will award contract and begin system design/development - Will Continue government test and non-prime engineering and technical support and OGC FY 2018 to FY 2019 Increase/Decrease Statement: Funding in FY19 increased because it was previously included in the RQ-4 Capability Enhancements Accomplishment/Planned Program.		0.000	0.000
			55.345
Title: RQ-4 Ground Segment Modernization Program (GSMP) Description: GSMP resolves fleet grounding DMS and obsolescence issues associated with ground segment equipment and provides critical warfighter capabilities such as building-based multi-aircraft control. It will also enhance interoperability data dissemination as well as provide training capability. FY 2018 Plans: - Continue software development and system level testing of the GSMP - Continue development and hardware purchases for vendor SILs, DT and OT locations for the GSMP - Continue development technical publications, courseware and a trainer for the GSMP - Conduct installation of the GSMP cockpits at SILs, DT and OT locations FY 2019 Plans: - Will continue software development and system level testing of the GSMP - Will continue development and hardware purchases for vendor SILs, DT and OT locations for the GSMP - Will continue development technical publications, courseware and a trainer for the GSMP		55.567	66.610
			37.550

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019
- Will begin developmental test of GSMP				
FY 2018 to FY 2019 Increase/Decrease Statement: Funding in FY19 decreased in accordance with program office estimate and prime contract costs.				
Title: RQ-4 MS-177 Sensor Integration Description: Integration of MS-177 multispectral sensor into Block 30 FY 2018 Plans: - Continue the integration, and testing of MS-177 on Block 30, including additional spectral bands - Conduct MS-177 OT and Initial Operational Capability (IOC) - Continue development of MS-177A (10-Band) FY 2019 Plans: - Will continue the integration, and testing of MS-177 on Block 30, including additional spectral bands - Will conduct MS-177 OT and attain Initial Operational Capability (IOC) - Will continue development of MS-177A (10-Band) and integration - Will begin DT of MS-177A FY 2018 to FY 2019 Increase/Decrease Statement: Funding in FY19 increased in accordance with program office estimate and prime contract costs.		44.824	11.000	39.732
Title: RQ-4 Infrastructure Description: RQ-4 Infrastructure includes system engineering, program management, test and evaluation, and fielding support for all RQ-4 projects as well as periodic Operational Flight Program (OFP) updates and releases, development testing, and Other Government Costs (OGC). This funding was previously included in the RQ-4 Capability Enhancements Accomplishment/Planned Program. FY 2018 Plans: -N/A FY 2019 Plans: - Will develop OFP releases - Will perform government test and non-prime engineering and technical support and OGC FY 2018 to FY 2019 Increase/Decrease Statement:		0.000	0.000	49.566

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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 0305220F / RQ-4 UAV				Project (Number/Name) 675149 / RQ-4 Capability Enhancements				
B. Accomplishments/Planned Programs (\$ in Millions)										FY 2017	FY 2018	FY 2019
In FY19, as program transitions into modernization, Global Hawk flight test and system engineering/program management within infrastructure transitions into its own effort and will be contracted in conjunction with capability development.												
Accomplishments/Planned Programs Subtotals										114.013	167.745	195.739
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 HAEUAV: RQ-4	6.488	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.488	
• APAF 05 Line Item HAWK00: RQ-4 Mods	32.045	43.968	23.715	-	23.715	4.851	126.340	117.382	106.166	89.085	543.552	
• APAF 07 Line Item RQ4DIS: RQ-4 Post Production Support	0.099	86.695	40.641	-	40.641	130.625	17.428	15.419	15.699	8.364	314.970	
• OPAF 03 Line Item 832070: Intelligence Comm Equipment	0.000	0.000	21.269	-	21.269	9.826	0.000	0.000	0.000	0.000	31.095	
Remarks												
D. Acquisition Strategy												
The RQ-4 program uses an evolutionary acquisition strategy to provide the warfighter with a near-term combat capability with increased time-phased capability improvements as technology and risk achieve satisfactory levels. Northrop Grumman Corporation is the prime contractor. A suite of contract vehicles is used for development efforts: primarily, IDIQ contracts cover development, upgrade, production, retrofit, fielding, and sustainment efforts.												
The program successfully completed Milestone (MS) C in February 2015 and is transitioning core program activities to the Operations and Support phase of the Defense Acquisition System over the next several years. Future required capabilities beyond the core Acquisition Category (ACAT) IC RQ-4 program will be completed as separate ACAT II and ACAT III modification programs.												
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.												

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements
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Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
RQ-4 Capability Enhancements	SS/ Various	Northrop Grumman Integrated Systems : San Diego, CA	0.000	11.144	Mar 2017	78.708	Mar 2018	9.573	Mar 2019	-		9.573	Continuing	Continuing	464.274
Integrated Functional Capability 9	SS/CPIF	Northrop Grumman Integrated Systems : San Diego, CA	0.000	0.000		0.000		51.345	Feb 2019	-		51.345	Continuing	Continuing	119.709
RQ-4 Ground Segment Modernization Program (GSMP)	SS/CPIF	Northrop Grumman Integrated Systems : San Diego, CA	0.000	55.567	Apr 2017	66.610	Apr 2018	37.550	Apr 2019	-		37.550	Continuing	Continuing	216.468
RQ-4 MS-177 Sensor Integration	SS/ Various	Various : San Diego, CA	0.000	44.824	Nov 2017	11.000	Apr 2018	39.732	Apr 2019	-		39.732	Continuing	Continuing	264.808
RQ-4 Infrastructure	Various	Various : Various	-	0.000		0.000		39.286	May 2019	-		39.286	Continuing	Continuing	238.615
Subtotal			0.000	111.535		156.318		177.486		-		177.486	Continuing	Continuing	N/A

Remarks

Target Value of the RQ-4 EMD, IDIQ, and EPIC Contracts is not segregated by Budget Project Number.
 Target Value of GSMP contract includes \$28.414M of funding in Budget Project Number 675147, RQ-4 Grnd Segment/Comm System
 Target Value of MS-177 contract includes \$122.268M of funding in Budget Project Number 675145, RQ-4 Block 30
 Target Value of RQ-4 Infrastructure includes \$87.338M of funding in Budget Project Number 675145, RQ-4 Block 30

Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Non Prime Technical Support	Various	Various : Dayton, OH	-	0.267	Feb 2017	1.137	Feb 2018	1.421	Feb 2019	-		1.421	Continuing	Continuing	-
Subtotal			-	0.267		1.137		1.421		-		1.421	Continuing	Continuing	N/A

Remarks

Target Value of the RQ-4 effort is not segregated by Budget Project Number.

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements
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Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test & Evaluation	MIPR	412 TW : Edwards AFB, CA	-	-		4.717	Oct 2017	10.280	Oct 2018	-		10.280	Continuing	Continuing	-
Subtotal			-	-		4.717		10.280		-		10.280	Continuing	Continuing	N/A

Remarks
Target Value of the RQ-4 effort is not segregated by Budget Project Number.

Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA: A&AS	Various	Various : Dayton, OH	-	1.893	Nov 2016	3.985	Nov 2017	4.653	Nov 2018	-		4.653	Continuing	Continuing	-
PMA: Other Government Costs	Various	Varous : Dayton, OH	-	0.318	Oct 2016	1.588	Oct 2017	1.899	Oct 2018	-		1.899	Continuing	Continuing	-
Subtotal			-	2.211		5.573		6.552		-		6.552	Continuing	Continuing	N/A

Remarks
Target Value of the RQ-4 effort is not segregated by Budget Project Number.

	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	0.000	114.013	167.745	195.739	-	195.739	Continuing	Continuing	N/A

Remarks

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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 0305220F / RQ-4 UAV		Project (Number/Name) 675149 / RQ-4 Capability Enhancements	

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
RQ-4 Capability Enhancements																												
Sensor Enhancements & Upgrades (MS-177) Development																												
Ice Protection System Risk Reduction & Analysis																												
Ground Segment Maintenance/Upgrades Development																												
Ground Segment Modernization Program Development																												
Comms Systems Maintenance/Upgrades Development																												
Communication System Modernization Program Development																												
RQ-4 Infrastructure & Test																												
Integrated Functional Capability 9																												

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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 0305220F / RQ-4 UAV	Project (Number/Name) 675149 / RQ-4 Capability Enhancements	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>RQ-4 Capability Enhancements</i>				
Sensor Enhancements & Upgrades (MS-177) Development	1	2017	3	2020
Ice Protection System Risk Reduction & Analysis	4	2017	3	2019
Ground Segment Maintenance/Upgrades Development	1	2017	4	2018
Ground Segment Modernization Program Development	1	2017	2	2020
Comms Systems Maintenance/Upgrades Development	1	2017	3	2019
Communication System Modernization Program Development	2	2020	4	2023
RQ-4 Infrastructure & Test	1	2019	4	2023
Integrated Functional Capability 9	2	2019	4	2021

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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 0305220F / RQ-4 UAV				Project (Number/Name) 67RTIP / MP-RTIP																															
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																												
67RTIP: MP-RTIP	242.704	7.468	11.935	0.001	0.000	0.001	5.121	0.000	0.000	0.000	0.000	267.229																												
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-																														
Project MDAP/MAIS Code: 293																																								
<p>Note</p> <p>Beginning in FY09, the Multi-Platform Radar Technology Insertion Program (MP-RTIP) funding was transferred to program 0305220F (RQ-4) Global Hawk (GH). Therefore, the data in this package includes only FY09 and subsequent funding related to program 0305220F.</p> <p>A. Mission Description and Budget Item Justification</p> <p>The MP-RTIP sensor was designed as a family of modular, scalable sensors to provide next generation capabilities to support sustainable network centric operations with integrated Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) capability. MP-RTIP provides the RQ-4 Block 40 aircraft with advanced Synthetic Aperture Radar (SAR) and Moving Target Indicator (MTI) sensor capabilities.</p> <p>This project (67RTIP) includes MP-RTIP modernization and integration efforts for the RQ-4 Block 40 Platform. MP-RTIP modernization studies and development insertion include the implementation of Maritime Modes (MM), Maritime Inverse SAR(MISAR), product improvements and other advanced capabilities. GH Program Office will continue integration of radar capabilities to include Maritime Modes integration into RQ-4 aircraft and ground systems.</p> <p>Activities also include studies and analysis supporting current and future program planning and future modes development based on user requirements. 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.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver MPRTIP 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.</p> <p>B. Accomplishments/Planned Programs (\$ in Millions)</p> <table><tr><td></td><td>FY 2017</td><td>FY 2018</td><td>FY 2019</td></tr><tr><td>Title: Multi-Platform Radar Tech Insertion Program (MP-RTIP)</td><td>7.468</td><td>11.935</td><td>0.001</td></tr><tr><td colspan="4">Description: MP-RTIP development and integration</td></tr><tr><td colspan="4">FY 2018 Plans:</td></tr><tr><td colspan="4">- Will complete transition of core capability development.</td></tr><tr><td colspan="4">- Will begin development to integrate Radar Software Development (RSD) 1.5 software build into the RQ-4 Block 40 Program.</td></tr><tr><td colspan="4">FY 2019 Plans:</td></tr></table>														FY 2017	FY 2018	FY 2019	Title: Multi-Platform Radar Tech Insertion Program (MP-RTIP)	7.468	11.935	0.001	Description: MP-RTIP development and integration				FY 2018 Plans:				- Will complete transition of core capability development.				- Will begin development to integrate Radar Software Development (RSD) 1.5 software build into the RQ-4 Block 40 Program.				FY 2019 Plans:			
	FY 2017	FY 2018	FY 2019																																					
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FY 2019 Plans:																																								

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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 0305220F / RQ-4 UAV				Project (Number/Name) 67RTIP / MP-RTIP				
B. Accomplishments/Planned Programs (\$ in Millions)										FY 2017	FY 2018	FY 2019
- Will complete transition to sustainment. GH Program Office will have responsibility for future radar development in the RQ-4 Capability Enhancements Program. FY 2018 to FY 2019 Increase/Decrease Statement: Decrease due to transition to sustainment and realignment of funds from MPRTIP to GH Capability Enhancements for future radar development and integration.												
Accomplishments/Planned Programs Subtotals										7.468	11.935	0.001
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 HAEUAV: RQ-4	6.488	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.488	
• APAF 05 Line Item HAWK00: RQ-4 Mods	32.045	43.968	23.715	-	23.715	4.851	126.340	117.382	106.166	89.085	543.552	
• APAF 07 Line Item RQ4DIS: RQ-4 Post Production Support	0.099	86.695	40.641	-	40.641	130.625	17.428	15.419	15.699	8.364	314.970	
• OPAF 03 Line Item 832070: Intelligence Comm Equipment	0.000	0.000	21.269	-	21.269	9.826	0.000	0.000	0.000	0.000	31.095	
• RDTE 07 PE 0305238F: NATO AGS	38.904	44.729	51.527	-	51.527	32.567	1.787	0.796	0.810	0.000	171.120	
Remarks												
D. Acquisition Strategy												
- Will complete transition to sustainment and GH Program Office will have responsibility for future radar development including integration of RSD 1.5 and Maritime Mode software in incorporate into Integrated Functional Capability (IFC) 9 plan.												
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.												

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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 0305220F / RQ-4 UAV				Project (Number/Name) 67RTIP / MP-RTIP					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MP-RTIP	SS/CPFF	Northrop Grumman Integrated Systems : El Segundo, CA	194.906	5.547	Feb 2017	11.935	Feb 2018	0.001	Feb 2019	-		0.001	35.492	247.881	-
Subtotal			194.906	5.547		11.935		0.001		-		0.001	35.492	247.881	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
IRT Study	Various	Various : Various, NV	0.105	-		-		-		-		-	0.000	0.105	0.105
Logistics Planning	SS/CPFF	Northrop Grumman Integrated Systems : El Segundo, CA	3.667	-		-		-		-		-	0.000	3.667	3.667
Subtotal			3.772	-		-		-		-		-	0.000	3.772	N/A
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test & Evaluation	MIPR	Various : Various, NV	9.536	-		-		-		-		-	0.000	9.536	-
Subtotal			9.536	-		-		-		-		-	0.000	9.536	N/A
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA: A&AS	C/CPFF	Various : Various, NV	30.698	1.893	Nov 2016	-		-		-		-	0.000	32.591	-
PMA: Other Gov't Cost	Various	Various : Boston, MA	3.792	0.028	Nov 2016	-		-		-		-	0.000	3.820	-
Subtotal			34.490	1.921		-		-		-		-	0.000	36.411	N/A

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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 0305220F / RQ-4 UAV					Project (Number/Name) 67RTIP / MP-RTIP				
		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		242.704	7.468		11.935		0.001		-		0.001	35.492	297.600	N/A

Remarks

Funds are required in FY20 to close out the entire MP-RTIP SDD contract #F19628-00-C-0100.

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force	Date: February 2018
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 67RTIP / MP-RTIP
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	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
MP-RTIP																												
Radar Software Build Development																												
SDD MP-RTIP Radar Transition to RQ-4 Block 40 Program Office																												
Radar Mode Integration & Mode Development (IFC 9/10)																												
SDD Contract Close Out																												

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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 0305220F / RQ-4 UAV	Project (Number/Name) 67RTIP / MP-RTIP	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MP-RTIP</i>				
Radar Software Build Development	1	2017	4	2017
SDD MP-RTIP Radar Transition to RQ-4 Block 40 Program Office	1	2018	4	2018
Radar Mode Integration & Mode Development (IFC 9/10)	1	2018	4	2018
SDD Contract Close Out	1	2020	4	2020