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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	686.056	180.547	256.307	214.849	0.000	214.849	227.143	228.670	175.572	178.642	Continuing	Continuing
675145: RQ-4 Block 30	236.368	128.051	126.737	35.030	0.000	35.030	32.495	27.812	25.577	26.100	0.000	638.170
675146: RQ-4 Block 40	169.092	4.944	0.089	0.139	0.000	0.139	0.000	0.000	0.000	0.000	0.000	174.264
675147: RQ-4 Grnd Segment/Comm System	53.915	31.460	0.175	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	85.550
675149: RQ-4 Capability Enhancements	0.000	0.000	121.838	167.745	0.000	167.745	182.744	188.741	137.708	141.454	Continuing	Continuing
67RTIP: MP-RTIP	226.681	16.092	7.468	11.935	0.000	11.935	11.904	12.117	12.287	11.088	0.000	309.572
Program MDAP/MAIS Code: 252												
Project MDAP/MAIS Code(s): 293												
Note												
The sum of all Prior Years is actually \$2031.377 million more than the represented total due to several projects ending.												
In FY17 the PE contains funding for RQ-4 Global Hawk (ACAT 1C), MP-RTIP (ACAT 1C), GSMP (ACAT II) and MS-177 Sensor (ACT III) programs. In FY 2017 and beyond, Program 0305220F, RQ-4, Project 675145, RQ-4 Block 30, Project 675146, RQ-4 Block 40, and Project 675147, RQ-4 Ground Segment/Comm System, most major modernization efforts will be transferred to Program 0305220F, RQ-4, Project 675149, RQ-4 Capability Enhancements in order to allow greater visibility into Global Hawk modernization efforts.												
In FY 2018, 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.												
In FY 2017, PE 0305220F, RQ-4 UAV, Project 675147, RQ-4 Grnd Segment/Comm System, 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												
This program element funds five (5) 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. Beginning in FY17, the majority of modernization funding was transferred to the Capability Enhancements project to support upgrades												

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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). GSMP and 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). Prior year funds in the amount of \$2031.377M were accounted for in project 675144.						
The FY2018 funding request was reduced by \$49.958 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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget		188.053	256.307	321.807	0.000	321.807
Current President's Budget		180.547	256.307	214.849	0.000	214.849
Total Adjustments		-7.506	0.000	-106.958	0.000	-106.958
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	0.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		-7.506	0.000			
• SBIR/STTR Transfer		0.000	0.000			
• Other Adjustments		0.000	0.000	-106.958	0.000	-106.958
Change Summary Explanation						
FY16 \$7.506M decrease: Reprogramming of funds due to higher Air Force priorities.						
FY18 \$57.0M decrease: Air Force directed changes for higher priority efforts.						
FY18 \$49.958M decrease: Air Force directed reduction to account for availability of prior year execution balances.						

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675145: RQ-4 Block 30	236.368	128.051	126.737	35.030	0.000	35.030	32.495	27.812	25.577	26.100	0.000	638.170
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.

In FY 2017 and beyond, Program 0305220F, RQ-4, Project 675145, Block 30, most major modernization efforts have been transferred to Program 0305220F, RQ-4, Project 675149, Capability Enhancements. The transfer of these efforts allows greater visibility into Global Hawk upgrade 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 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 development and testing, enhanced weather capability development 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: FY 2018 Air Force			Date: May 2017		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV	Project (Number/Name) 675145 / RQ-4 Block 30		
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).					
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2016	FY 2017	FY 2018
Title: RQ-4 Block 30 Development and Demonstration			73.076	93.378	24.980
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.					
FY 2016 Accomplishments: - Continued development of system interoperability, IFF Mode 5/ADS-B, enhanced weather capability, Joint Mission Planning System (JMPS) mission planning, cybersecurity and information assurance and reliability & maintainability, and associated testing & evaluation - Continued upgrades to Airborne Signals Intelligence Payload (ASIP Signals Intelligence (SIGINT) and Enhanced Integrated Sensor Suite (EISS sensors					
FY 2017 Plans: - 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 - Initiate Operational Flight Program updates and releases - Continue risk reduction and analysis of ice protection system - Development and operational test of enhanced weather capability and JMPS					
FY 2018 Plans: - Will continue upgrades to ASIP SIGINT and EISS sensors - Will continue airspace integration activities including IFF Mode 5/ADS-B, comm interoperability and upgrades, cybersecurity and information assurance and reliability & maintainability, and associated testing - Will continue development of Operational Flight Program updates - Will continue risk reduction and analysis of ice protection system - Will conduct Operational test of enhanced weather capability					
Title: RQ-4 MS-177 Sensor Integration			38.655	4.000	0.000
Description: Integration of MS-177 multispectral sensor into Block 30					

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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 2016	FY 2017	FY 2018
FY 2016 Accomplishments: - Awarded contract for MS-177 integration and development activities - Initiated sensor enhancement RDT&E of additional spectral band request for FOC capability												
FY 2017 Plans: - Continue the development, integration, and testing of MS-177 on Block 30, including additional spectral bands - Conduct first flight and development test activities												
FY 2018 Plans: - Will continue in project 675149												
Title: Block 30 Government Test and Non-Prime Support										16.320	29.359	10.050
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 2016 Accomplishments: - Continued government test - Continued non-prime engineering and technical support and Other Government Costs												
FY 2017 Plans: - Continue government test - Continue non-prime engineering and technical support and Other Government Costs												
FY 2018 Plans: - Will continue government test - Will continue non-prime engineering and technical support and Other Government Costs												
Accomplishments/Planned Programs Subtotals										128.051	126.737	35.030
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost	
• APAF: BA04: Line Item # HAEUAV: RQ-4	4.250	12.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4,354.270	
• APAF: BA05: Line Item # HAWK00: RQ-4 Mods	50.022	32.045	43.968	0.000	43.968	76.511	22.590	132.710	143.228	167.265	1,083.716	

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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>C. Other Program Funding Summary (\$ in Millions)</b>											
			<u>FY 2018</u>	<u>FY 2018</u>	<u>FY 2018</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Complete</u>	<u>Total Cost</u>
• APAF: BA07: Line Item # RQ4DIS: RQ-4 Post Production Support	0.000	0.099	86.695	0.000	86.695	90.044	61.661	17.575	15.549	92.583	424.236
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
<p>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&amp;E is being contracted directly with the Original Equipment Manufacturer (OEM), United Technology Corporation Aerospace Systems (UTAS).</p> <p>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.</p>											
<b>E. Performance Metrics</b>											
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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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>													<b>Date: May 2017</b>		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV				<b>Project (Number/Name)</b> 675145 / RQ-4 Block 30					

  

<b>Product Development (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Global Hawk Engineering Manufacturing and Development	SS/ Various	Northrop Grumman Integrated Systems : San Diego, CA	166.963	73.076	May 2016	93.378	Jul 2017	24.980	Jul 2018	0.000		24.980	106.824	465.221	465.221
RQ-4 MS-177 Sensor Integration	SS/ Various	Various : Various	49.143	38.655	Jul 2016	4.000	Nov 2016	0.000		0.000		0.000	0.000	91.798	140.229
<b>Subtotal</b>			216.106	111.731		97.378		24.980		0.000		24.980	106.824	557.019	605.450

  

**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 \$48.431M of funding in Budget Project Number 675149, RQ-4 Capability Enhancements.

  

<b>Support (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Non Prime Technical Support	Various	Various : Dayton, OH	1.330	1.131	Feb 2016	0.423	Jan 2017	0.396	Jan 2018	0.000		0.396	0.000	3.280	3.280
<b>Subtotal</b>			1.330	1.131		0.423		0.396		0.000		0.396	0.000	3.280	3.280

  

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

  

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Flight Test & Evaluation	MIPR	412 TW : Edwards AFB, CA	11.606	9.650	Oct 2015	23.604	Oct 2016	6.338	Oct 2017	0.000		6.338	1.163	52.361	52.361
<b>Subtotal</b>			11.606	9.650		23.604		6.338		0.000		6.338	1.163	52.361	52.361

  

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

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>	<b>Date: May 2017</b>
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 675145 / RQ-4 Block 30
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Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	5.708	3.739	Nov 2015	3.200	Nov 2016	2.315	Nov 2017	0.000		2.315	3.697	18.659	18.659
PMA: Other Government Costs	Various	Various : Dayton, OH	1.618	1.800	Oct 2015	2.132	Oct 2016	1.001	Oct 2017	0.000		1.001	0.300	6.851	6.851
<b>Subtotal</b>			7.326	5.539		5.332		3.316		0.000		3.316	3.997	25.510	25.510

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

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	236.368	128.051		126.737		35.030		0.000		35.030	111.984	638.170	-

**Remarks**



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: FY 2018 Air Force</b>															<b>Date: May 2017</b>				
<b>Appropriation/Budget Activity</b> 3600 / 7										<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV					<b>Project (Number/Name)</b> 675145 / RQ-4 Block 30				

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
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																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 675145 / RQ-4 Block 30	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Enhanced Weather Capability Development	1	2016	4	2017
Mode 5/ADS-B Development	2	2016	2	2018
ASIP Inc 1 Development	2	2016	3	2017
Mission Planning Development	1	2016	3	2017
Sensor Enhancements & Upgrades (MS-177) Development	1	2016	2	2017
Operational Flight Program Updates & Releases	3	2017	4	2022
Test Support	1	2016	4	2019

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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			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675146: RQ-4 Block 40	169.092	4.944	0.089	0.139	0.000	0.139	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 2017 and beyond, Program 0305220F, RQ-4, Project 675146, Block 40, most major modernization efforts have been transferred to Program 0305220F, RQ-4, Project 675149, Capability Enhancements. The transfer of these efforts allows greater visibility into Global Hawk modernization efforts.

In FY 2018, 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.

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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			
Activities also include studies and analysis, support to future system enhancements, communication and interoperability enhancements, current and future program planning, and project execution.											
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2016	FY 2017	FY 2018	
Title: RQ-4 Block 40 Development and Demonstration								4.944	0.089	0.139	
Description: RQ-4 Block 40 Payload and Aircraft/Communications Development and Demonstration as well as periodic Operational Flight Program updates and releases											
FY 2016 Accomplishments:											
- Completed successful IOT&E rated "suitable, effective and mission capable"											
- Began development activities to support airspace integration activities including IFF Mode 5/ADS-B											
- Continued development of mission planning, enhanced weather capability, sensor software, and integration of additional MP-RTIP radar modes											
- Continued enhancements to system interoperability, cybersecurity, comms, information assurance, and reliability & maintainability improvements and associated testing & evaluation											
FY 2017 Plans:											
- Initiate Operational Flight Program updates and releases											
- Continue enhancements to system interoperability, cybersecurity, comms, information assurance, and reliability & maintainability improvements and associated testing & evaluation											
- Continue development and testing of enhanced weather capability											
- Continue airspace integration of IFF Mode 5/ADS-B											
- Continue integration of additional RTIP modes and associated testing											
FY 2018 Plans:											
- Will complete funding of airspace integration of IFF Mode 5/ADS-B											
- Will continue integration of additional RTIP modes and associated testing											
Accomplishments/Planned Programs Subtotals								4.944	0.089	0.139	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• APAF: BA04: Line Item # HAEUAV: RQ-4	4.250	12.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4,380.410
• APAF: BA05: Line Item # HAWK00: RQ-4 Mods	50.022	32.045	43.968	0.000	43.968	76.511	22.590	132.710	143.228	167.265	1,054.745

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force									Date: May 2017		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675146 / RQ-4 Block 40			
C. Other Program Funding Summary (\$ in Millions)											
			FY 2018	FY 2018	FY 2018					Cost To	
Line Item	FY 2016	FY 2017	Base	OCO	Total	FY 2019	FY 2020	FY 2021	FY 2022	Complete	Total Cost
• APAF: BA07: Line Item # RQ4DIS: RQ-4 Post Production Support	0.000	0.099	86.695	0.000	86.695	90.044	61.661	17.575	15.549	92.583	364.206
• RDTE: BA07: PE 0305238F: NATO AGS	131.900	38.904	44.729	0.000	44.729	38.915	25.812	1.800	0.802	0.000	282.862
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.											
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: FY 2018 Air Force												Date: May 2017			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675146 / RQ-4 Block 40					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	134.040	4.944	Nov 2015	0.089	Nov 2016	0.139	Nov 2017	0.000		0.139	0.000	139.212	139.212
Subtotal			134.040	4.944		0.089		0.139		0.000		0.139	0.000	139.212	139.212
Remarks Target Value of the RQ-4 EMD, IDIQ, and EPIC contracts are not segregated by Budget Project Number.															
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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		0.000		0.000		0.000		0.000	0.000	1.369	-
Subtotal			1.369	0.000		0.000		0.000		0.000		0.000	0.000	1.369	-
Remarks Target Value of the Global Hawk effort is not segregated by Budget Project Number.															
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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		0.000		0.000		0.000		0.000	0.000	23.231	-
Subtotal			23.231	0.000		0.000		0.000		0.000		0.000	0.000	23.231	-
Remarks Target Value of the Global Hawk effort is not segregated by Budget Project Number.															

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>	<b>Date: May 2017</b>
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 675146 / RQ-4 Block 40
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Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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		0.000		0.000		0.000		0.000	0.000	7.040	-
PMA: Other Gov't Cost	Various	Various : Dayton, OH	3.412	0.000		0.000		0.000		0.000		0.000	0.000	3.412	-
<b>Subtotal</b>			10.452	0.000		0.000		0.000		0.000		0.000	0.000	10.452	-

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

	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	169.092	4.944	0.089	0.139	0.000	0.139	0.000	174.264	-

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: FY 2018 Air Force</b>																<b>Date: May 2017</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7								<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV								<b>Project (Number/Name)</b> 675146 / RQ-4 Block 40			

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
Block 40 IOT&E																												
Block 40 IOC June 2016																												
Block 40 FOC June 2017																												
RTIP Enhancements Development																												
Enhanced Weather Capability Development																												
Mode 5/ADS-B Development																												
Mission Planning Development																												
Sensor Integration/Modes Development																												
Operational Flight Program Updates and Releases																												



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 675146 / RQ-4 Block 40	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Block 40 IOT&E	1	2016	2	2016
Block 40 IOC June 2016	4	2016	4	2016
Block 40 FOC June 2017	4	2017	4	2017
RTIP Enhancements Development	1	2016	4	2016
Enhanced Weather Capability Development	1	2016	4	2017
Mode 5/ADS-B Development	2	2016	2	2018
Mission Planning Development	1	2016	3	2016
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: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675147 / RQ-4 Grnd Segment/Comm System			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675147: RQ-4 Grnd Segment/Comm System	53.915	31.460	0.175	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	85.550
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

The RQ-4 Ground Segment/Communications System Sub-Program 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 sub-program projects, budgets had already been finalized. The 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 2017 and beyond, Program 0305220F, RQ-4, Project 675147, Ground Segment/Comm System, most major modernization efforts have been transferred to Program 0305220F, RQ-4, Project 675149, Capability Enhancements. The transfer of these efforts allows greater visibility into Global Hawk modernization efforts.

In FY 2017, PE 0305220F, RQ-4 UAV, Project 675147, RQ-4 Grnd Segment/Comm System, 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 the weapon system's ground elements and communications capabilities to enhance functionality and maintain interoperability, as well as support for demonstration and technology insertion. 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.

The RDT&E funding in this project also supports the 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. Both GSMP and CSMP will employ the USAF Unmanned Aerial System (UAS) Command and Control Initiative (UCI), the DoD's Unmanned Control Segment standards (UCS), and Open Mission Systems (OMS) using a service-oriented, open architecture approach. Prior to GSMP/CSMP fielding, funding from this project supports modifications to the legacy system to support operations.

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force			Date: May 2017			
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV		Project (Number/Name) 675147 / RQ-4 Grnd Segment/Comm System		
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 explore the utility of next-generation communications technologies, as well as emerging architectural standards such as UCI and UCS as well as technology insertion activities in support of Better Buying Power (BBP).						
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.						
B. Accomplishments/Planned Programs (\$ in Millions)				FY 2016	FY 2017	FY 2018
Title: RQ-4 Ground Segment / Communications System - Critical Obsolescence and Modernization				3.046	0.175	0.000
Description: RQ-4 Ground Segment/ Communications System Development						
FY 2016 Accomplishments:						
- Continued to resolve critical DMS and obsolescence issues with ground and comms segment equipment and software						
- Continued interoperability upgrades and cybersecurity with system of systems partners						
- Incorporated applicable synergies with other platforms, such as the U.S. Navy's Triton, other RPA weapon systems, and Processing, Exploitation & Dissemination (PED) elements						
- Incorporated Air Vehicle (AV) modifications/upgrades into the ground segment architecture						
FY 2017 Plans:						
- Continue to resolve critical DMS and obsolescence issues with ground and comms segment equipment and software						
- Maintain and upgrade interoperability and cybersecurity with system of systems partners						
- 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						
- Continue Air Vehicle (AV) modifications/upgrades into the ground segment architecture						
FY 2018 Plans:						
- N/A						
Title: RQ-4 Ground Segment Modernization Program (GSMP)				28.414	0.000	0.000
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 2016 Accomplishments:						
- Completed Acquisition Strategy Panel (ASP) and awarded development contract						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force										<b>Date:</b> May 2017	
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV				<b>Project (Number/Name)</b> 675147 / RQ-4 Grnd Segment/Comm System			

  

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<ul style="list-style-type: none"> <li>- Began development of GSMP, leveraging earlier efforts which developed a modern aircraft command and control capability and an open-system architecture</li> <li>- Successful Milestone B decision</li> </ul> <p><b>FY 2017 Plans:</b></p> <ul style="list-style-type: none"> <li>- N/A, effort is funded in Project 675149, RQ-4 Capability Enhancements</li> </ul> <p><b>FY 2018 Plans:</b></p> <ul style="list-style-type: none"> <li>- N/A, effort is funded in Project 675149, RQ-4 Capability Enhancements</li> </ul>			
<b>Accomplishments/Planned Programs Subtotals</b>	31.460	0.175	0.000

  

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u> <u>Base</u>	<u>FY 2018</u> <u>OCO</u>	<u>FY 2018</u> <u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA04: Line Item # HAEUAV: RQ-4	4.250	12.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4,354.270
• APAF: BA05: Line Item # HAWK00: RQ-4 Mods	50.022	32.045	43.968	0.000	43.968	76.511	22.590	132.710	143.228	167.265	1,083.716
• APAF: BA07: Line Item # RQ4DIS: RQ-4 Post Production Support	0.000	0.099	86.695	0.000	86.695	90.044	61.661	17.575	15.549	92.583	424.236
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
<p>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 &amp; Manufacturing Development (EMD) "C" contract is being phased out with the completion of current efforts; and Indefinite Delivery, Indefinite Quantity (IDIQ) contracts cover development, upgrade, production, retrofit, fielding, and sustainment efforts.</p> <p>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 IC (ACAT) RQ-4 program are planned to be added over time as separate ACAT II and ACAT III modification programs.</p>											

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force		<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 675147 / RQ-4 Grnd Segment/Comm System

**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: FY 2018 Air Force												Date: May 2017			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 675147 / RQ-4 Grnd Segment/Comm System					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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 / IDIQ Ground Segment and Communication Systems	SS/CPIF	Northrop Grumman Integrated Systems : San Diego, CA	48.076	3.046	May 2016	0.175	Nov 2016	0.000		0.000		0.000	0.000	51.297	51.297
RQ-4 Ground Segment Modernization Program (GSMP)	SS/CPIF	Northrop Grumman Integrated Sytems : San Diego, CA	0.000	28.414	Jul 2016	0.000		0.000		0.000		0.000	0.000	28.414	190.221
Subtotal			48.076	31.460		0.175		0.000		0.000		0.000	0.000	79.711	241.518
Remarks															
Target Value of RQ-4 EMD, IDIQ, and EPIC Contracts is not segregated by Budget Project Number.															
Target Value of GSMP contract includes \$161.807M of funding in Budget Project Number 675149, RQ-4 Capability Enhancements in FY 2017 and beyond.															
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	2.738	0.000		0.000		0.000		0.000		0.000	0.000	2.738	-
Subtotal			2.738	0.000		0.000		0.000		0.000		0.000	0.000	2.738	-
Remarks															
Target Value of the Global Hawk effort is not segregated by Budget Project Number.															
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	2.500	0.000		0.000		0.000		0.000		0.000	0.000	2.500	-
Subtotal			2.500	0.000		0.000		0.000		0.000		0.000	0.000	2.500	-

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>													<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV				<b>Project (Number/Name)</b> 675147 / RQ-4 Grnd Segment/Comm System					
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Remarks</b> Target Value of the RQ-4 effort is not segregated by Budget Project Number.															
<b>Management Services (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PMA: A&AS	Various	Various : Dayton, OH	0.401	0.000		0.000		0.000		0.000		0.000	0.000	0.401	-
PMA: Other Gov't Cost	Various	Various : Dayton, OH	0.200	0.000		0.000		0.000		0.000		0.000	0.000	0.200	-
<b>Subtotal</b>			0.601	0.000		0.000		0.000		0.000		0.000	0.000	0.601	-
<b>Remarks</b> Target Value of the Global Hawk effort is not segregated by Budget Project Number.															
			<b>Prior Years</b>	<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			53.915	31.460		0.175		0.000		0.000		0.000	0.000	85.550	-
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> FY 2018 Air Force			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 3600 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV		
			<b>Project (Number/Name)</b> 675147 / RQ-4 Grnd Segment/Comm System		

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
Ground Segment Maintenance/Upgrades Development																												
Ground Segment Modernization Program (GSMP) Development																												
Comm Systems Maintenance/Upgrades Development																												
Communication Interoperability/Enhancements Development																												



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 675147 / RQ-4 Grnd Segment/Comm System	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Ground Segment Maintenance/Upgrades Development	1	2016	1	2017
Ground Segment Modernization Program (GSMP) Development	1	2016	1	2017
Comm Systems Maintenance/Upgrades Development	1	2016	1	2017
Communication Interoperability/Enhancements Development	1	2017	1	2017

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675149: RQ-4 Capability Enhancements	0.000	0.000	121.838	167.745	0.000	167.745	182.744	188.741	137.708	141.454	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2017 and beyond, Program 0305220F, RQ-4, Project 675145, Block 30, Project 675146, RQ-4 Block 40, and Project 675147, Ground Segment/Comm System, most major modernization efforts have been transferred to Program 0305220F, RQ-4, Project 675149, Capability Enhancements. The transfer of these efforts allows 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 capabilities needed to meet validated requirements for RQ-4 aircraft, including continuing aircraft system upgrade for current and alternate sensor payloads.

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.

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.

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

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force			Date: May 2017			
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>(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> <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 &amp; 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 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 2016	FY 2017	FY 2018
Title: RQ-4 Capability Enhancements				0.000	64.641	90.135
Description: RQ-4 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).						
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 OGC.						
FY 2016 Accomplishments: N/A						
FY 2017 Plans: - Support required sensor upgrades and current and alternate sensor enhancements and upgrades - 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 system, continued system interoperability and upgrades, cybersecurity and information assurance and reliability & maintainability, and associated testing - Initiate Operational Flight Program updates and releases						

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: May 2017		
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 2016	FY 2017	FY 2018
<div>- Conduct pre-contract activities supporting the Communication System Modernization Program (CSMP) and Optical Bar Camera (OBC)</div> <div>- Continue government test and non-prime engineering and technical support and Other Government Costs</div> <div>FY 2018 Plans:</div> <div>- Will conduct airspace integration activities, integration of advanced sensors, utilization of additional radar modes, and comms system enhancements</div> <div>- Will conduct risk reduction and analysis of ice protection system, continued system interoperability and upgrades, cybersecurity and information assurance and reliability &amp; maintainability, and associated testing</div> <div>- Will continue development and testing of alternate sensors and upgrades</div> <div>- Will continue development of OFP releases</div> <div>- Will continue government test and non-prime engineering and technical support and Other Government Costs</div> <div>- Will begin development to integrate Radar Software Development (RSD) 1.5 software build into Block 40 Program</div> <div>- Will continue development of radar capabilities to include Maritime Modes Integration</div>				
<div>Title: RQ-4 Ground Segment Modernization Program (GSMP)</div> <div>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.</div> <div>FY 2016 Accomplishments:</div> <div>- In project 675147</div> <div>FY 2017 Plans:</div> <div>- Conduct software development and system level testing of the GSMP</div> <div>- Conduct development and purchase hardware for vendor Software Integration Laboratories (SILs), Development Testing (DT) and Operational Testing (OT) locations for the GSMP</div> <div>- Conduct development of technical publications, courseware and a trainer for the GSMP</div> <div>- Conduct Preliminary Design Review (PDR) and Critical Design Review (CDR)</div> <div>FY 2018 Plans:</div> <div>- Will continue software development and system level testing of the GSMP</div> <div>- Will continue development and hardware purchases for vendor SILs, DT and OT locations for the GSMP</div> <div>- Will continue development technical publications, courseware and a trainer for the GSMP</div> <div>- Will conduct installation of the GSMP cockpits at SILs, DT and OT locations</div>		0.000	57.197	66.610
Title: RQ-4 MS-177 Sensor Integration		0.000	0.000	11.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force										<b>Date:</b> May 2017	
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV				<b>Project (Number/Name)</b> 675149 / RQ-4 Capability Enhancements			

  

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Description:</b> Integration of MS-177 multispectral sensor into Block 30  <b>FY 2016 Accomplishments:</b> - In project 675145  <b>FY 2017 Plans:</b> - In project 675145  <b>FY 2018 Plans:</b> - Will continue the integration, and testing of MS-177 on Block 30, including additional spectral bands - Will conduct MS-177 OT and Initial Operational Capability (IOC) - Will continue development of MS-177A (10-Band)			
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	121.838	167.745

  

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• APAF: BA04: Line Item # HAEUAV: RQ-4	4.250	12.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4,354.270
• APAF: BA05: Line Item # HAWK00: RQ-4 Mods	50.022	32.045	43.968	0.000	43.968	76.511	22.590	132.710	143.228	167.265	1,083.716
• APAF: BA07: Line Item # RQ4DIS: RQ-4 Post Production Support	0.000	0.099	86.695	0.000	86.695	90.044	61.661	17.575	15.549	92.583	424.236
<b>Remarks</b>											
<b>D. Acquisition Strategy</b> 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.											

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: May 2017
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>E. Performance Metrics</b> 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: FY 2018 Air Force** **Date:** May 2017

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 675149 / RQ-4 Capability Enhancements
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Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Title: RQ-4 Capability Enhancements	SS/ Various	Northrop Grumman Integrated Systems : San Diego, CA	0.000	0.000		61.011	Mar 2017	78.708	Mar 2018	0.000		78.708	725.808	865.527	865.527
RQ-4 Ground Segment Modernization Program (GSMP)	SS/CPIF	Northrop Grumman Integrated Systems : San Diego, CA	0.000	0.000		57.197	Apr 2017	66.610	Apr 2018	0.000		66.610	46.371	170.178	190.221
RQ-4 MS-177 Sensor Integration	SS/ Various	Various : San Diego, CA	0.000	0.000		0.000		11.000	Apr 2018	0.000		11.000	37.431	48.431	140.229
<b>Subtotal</b>			0.000	0.000		118.208		156.318		0.000		156.318	809.610	1,084.136	1,195.977

**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 in FY 2016.  
 Target Value of MS-177 contract includes \$91.798M of funding in Budget Project Number 675145, RQ-4 Block 30.

Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	0.000	0.000		0.267	Feb 2017	1.137	Feb 2018	0.000		1.137	10.155	11.559	-
<b>Subtotal</b>			0.000	0.000		0.267		1.137		0.000		1.137	10.155	11.559	-

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

Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	0.000	0.000		0.000		4.717	Oct 2017	0.000		4.717	122.022	126.739	-
<b>Subtotal</b>			0.000	0.000		0.000		4.717		0.000		4.717	122.022	126.739	-

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>													<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 3600 / 7							<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV				<b>Project (Number/Name)</b> 675149 / RQ-4 Capability Enhancements				

  

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Remarks</b> Target Value of the RQ-4 effort is not segregated by Budget Project Number.															

  

<b>Management Services (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PMA: A&AS	Various	Various : Dayton, OH	0.000	0.000		2.018	Nov 2016	3.985	Nov 2017	0.000		3.985	37.619	43.622	-
PMA: Other Government Costs	Various	Varous : Dayton, OH	0.000	0.000		1.345	Oct 2016	1.588	Oct 2017	0.000		1.588	23.904	26.837	-
<b>Subtotal</b>			0.000	0.000		3.363		5.573		0.000		5.573	61.523	70.459	-
<b>Remarks</b> Target Value of the RQ-4 effort is not segregated by Budget Project Number.															

  

	<b>Prior Years</b>	<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	0.000	0.000		121.838		167.745		0.000		167.745	1,003.310	1,292.893	-
<b>Remarks</b>													



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: FY 2018 Air Force</b>	<b>Date:</b> May 2017
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 675149 / RQ-4 Capability Enhancements
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	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
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																												
Operational Flight Program Updates & Releases Development																												
Test Support																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 675149 / RQ-4 Capability Enhancements	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
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	2019	4	2022
Operational Flight Program Updates & Releases Development	3	2017	4	2022
Test Support	1	2017	4	2022

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
67RTIP: MP-RTIP	226.681	16.092	7.468	11.935	0.000	11.935	11.904	12.117	12.287	11.088	0.000	309.572
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 293												
Note 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.												
A. Mission Description and Budget Item Justification 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.  This project (67RTIP) includes all MP-RTIP integration efforts for the RQ-4 Block 40 Platform. Integration activities include platform integration of the MP-RTIP sensor and sustainment logistics planning support. MP-RTIP studies and development insertion include the implementation of Maritime Modes (MM), Maritime Inverse SAR (MISAR), product improvements and other advanced capabilities. In FY 2017, MP-RTIP Program Management Office began transition of future radar development efforts to the GH Block 40 Program Office.  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.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2016	FY 2017	FY 2018	
Title: Multi-Platform Radar Tech Insertion Program (MP-RTIP)									16.092	7.468	11.935	
Description: MP-RTIP development and integration												
FY 2016 Accomplishments: - Continued the development of the MP-RTIP-Radar Software Development (RSD) 1.5 software build - Continued rigorous testing of RSD 1.5 intermediate software builds in the Radar System Integration Lab (RSIL)												
FY 2017 Plans: - Continue the development of the MP-RTIP-RSD 1.5 software build (to include emergency builds if necessary). The completion of software build 1.5 will allow sustainment to perform system integration in the Global Hawk System Center (GHSC)												

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0305220F / RQ-4 UAV				Project (Number/Name) 67RTIP / MP-RTIP				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>										<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
- Complete rigorous testing of RSD 1.5 final System Design and Development (SDD) software builds in the RSIL												
<b>FY 2018 Plans:</b>												
- Will complete transition to sustainment. GH Program Office will have responsibility for future radar development												
- Will begin development to integrate RSD 1.5 software build into the RQ-4 Block 40 Program												
- Will continue development of radar capabilities to include Maritime Modes integration into RQ-4 aircraft and ground systems												
<b>Accomplishments/Planned Programs Subtotals</b>										16.092	7.468	11.935
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
<b>Line Item</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	
• APAF: BA04: Line Item # HAEUAV: RQ-4	4.250	12.966	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4,354.270	
• APAF: BA05: Line Item # HAWK00: RQ-4 Mods	50.022	32.045	43.968	0.000	43.968	76.511	22.590	132.710	143.228	167.265	1,083.716	
• APAF: BA07: Line Item # RQ4DIS: RQ-4 Post Production Support	0.000	0.099	86.695	0.000	86.695	90.044	61.661	17.575	15.549	92.583	424.236	
• RDT&E: BA07: PE 0305238F: NATO AGS	131.900	38.904	44.729	0.000	44.729	38.915	25.812	1.800	0.802	0.000	282.862	
<b>Remarks</b>												
<b>D. Acquisition Strategy</b>												
Will complete transition to sustainment and GH Program Office will have responsibility for future radar development. Will continue development to integrate RSD 1.5 and Maritime Mode software to incorporate into Integrated Functional Capability (IFC) 9 plan.												
<b>E. Performance Metrics</b>												
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: FY 2018 Air Force													Date: May 2017		
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 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	181.669	13.192	Nov 2015	4.781	Feb 2017	11.435	Feb 2018	0.000		11.435	47.396	258.473	-
Subtotal			181.669	13.192		4.781		11.435		0.000		11.435	47.396	258.473	-
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	0.105	0.000		0.000		0.000		0.000		0.000	0.000	0.105	0.105
Logistics Planning	SS/CPFF	Northrop Grumman Integrated Systems : El Segundo, CA	3.667	0.000		0.000		0.000		0.000		0.000	0.000	3.667	3.667
Subtotal			3.772	0.000		0.000		0.000		0.000		0.000	0.000	3.772	3.772
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	9.536	0.000		0.000		0.000		0.000		0.000	0.000	9.536	-
Subtotal			9.536	0.000		0.000		0.000		0.000		0.000	0.000	9.536	-
Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	27.959	2.818	Nov 2015	2.602	Nov 2016	0.500	Nov 2017	0.000		0.500	0.000	33.879	-
PMA: Other Gov't Cost	Various	Various : Boston, MA	3.745	0.082	Nov 2015	0.085	Nov 2016	0.000		0.000		0.000	0.000	3.912	-
Subtotal			31.704	2.900		2.687		0.500		0.000		0.500	0.000	37.791	-

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force										Date: May 2017					
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 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			226.681	16.092		7.468		11.935		0.000		11.935	47.396	309.572	-
Remarks Funds are required in FY22 to close out the entire pre-transition MP-RTIP SDD contract #F19628-00-C-0100.															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> FY 2018 Air Force	<b>Date:</b> May 2017
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 67RTIP / MP-RTIP
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	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
Radar Software Build Development																												
IOT&E Readiness & IOT&E																												
SDD MP-RTIP Radar Transition to RQ-4 Block 40 Program Office																												
SDD Contract Close Out																												
Radar Mode Integration & Mode Development (IFC 9/10)																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV	<b>Project (Number/Name)</b> 67RTIP / MP-RTIP	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Radar Software Build Development	1	2016	4	2017
IOT&E Readiness & IOT&E	1	2016	3	2016
SDD MP-RTIP Radar Transition to RQ-4 Block 40 Program Office	1	2018	4	2018
SDD Contract Close Out	1	2022	4	2022
Radar Mode Integration & Mode Development (IFC 9/10)	1	2018	4	2022