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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Air Force **Date:** April 2022

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0305220F / RQ-4 UAV
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	163.278	83.124	68.801	0.000	68.801	68.208	12.947	0.000	0.000	0.000	396.358
675149: <i>RQ-4 Capability Enhancements</i>	0.000	163.278	83.124	68.801	0.000	68.801	68.208	12.947	0.000	0.000	0.000	396.358

**Program MDAP/MAIS Code:** 252

**A. Mission Description and Budget Item Justification**

USAF divested the Block 20 aircraft in FY21 and Block 30 aircraft in FY22. To win high-end conflict, the future AF design must deliver ISR capabilities and concepts of operation that can survive against peer/near-peer threats. To accomplish this in the FYDP the USAF will pivot to focus on Block 30 closeout actions and supporting the Block 40 fleet until its planned divestiture in FY27.

This program element funds Air Force projects related to RQ-4 Block 40 and RQ-4 Capability Enhancements. The majority of the modernization funding was transferred to the Capability Enhancement project (675149) to support upgrades and modifications, including established ACAT I and II programs, to the fielded RQ-4 weapon system to meet evolving threats and warfighter requirements.

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 Systems (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) will incorporate UCI and UCS standards.

RQ-4 UAV funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver RQ-4 UAV capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY21 5.331M was expended for civilian pay expenses in this program element, and in FY22 5.8M is forecasted for civilian pay expenses in this program element.

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

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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	163.291	83.124	0.000	0.000	0.000
Current President's Budget	163.278	83.124	68.801	0.000	68.801
Total Adjustments	-0.013	0.000	68.801	0.000	68.801
• 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	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.013	0.000	68.801	0.000	68.801

**Change Summary Explanation**

The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force										<b>Date:</b> April 2022		
<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>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
675149: RQ-4 Capability Enhancements	0.000	163.278	83.124	68.801	0.000	68.801	68.208	12.947	0.000	0.000	0.000	396.358
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**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.

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, additional radar modes, reliability and maintainability improvements. Funding also supports continuing aircraft airframe updates, aircraft operations surety, cybersecurity, airspace and interoperability enhancements, information assurance, and mission critical repair of Government Furnished Equipment (GFE).

This project will include systems engineering/program management, configuration and data management, test and evaluation, management services, Deficiency Report (DR)/Military Intelligence Program (MIP) Investigations, studies and analysis and fielding support for RQ-4 aircraft and Ground Segment/Communication Systems. This reflects contracting/acquisition strategy for these common elements within the Global Hawk program to provide efficiencies.

Activities include airspace, interoperability and communication enhancements and updates, periodic Operational Flight Program updates and releases, airframe and software upgrades, sensor enhancements including data distribution and storage, 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, Authority to Operate surety enhancements, and studies and analysis supporting system enhancements.

The ground segment currently includes the Mission Control Elements (MCE), the Launch and Recovery Elements (LRE), and the networking resources required to disseminate intelligence information while remaining compliant with DoD cybersecurity network requirements to operate in the DoD Information Network (DoDIN).

Ground Segment Modernization Program (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. This funding also addresses DMS resolution for other mission critical equipment. Funding will support design, development, integration and testing of GSMP and the weapon system's legacy ground elements and communications capabilities to enhance functionality and maintain interoperability prior to GSMP fielding. Funding will also integrate Dynamic Mission Operations (DYNAMO), a waypoint modification system enhancement solution.

The RQ-4 program will maintain and upgrade interoperability for RQ-4 aircraft with system of systems partners and continue to incorporate applicable synergies with other platforms, 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.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force	<b>Date:</b> April 2022
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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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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 Systems (UAS) Command and Control Initiative (UCI) or the DoD's Unmanned Control Segment standards (UCS) and Open Mission Systems (OMS). GSMP will incorporate UCI and UCS standards.

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 0605831F. In FY21 5.331M was expended for civilian pay expenses, and in FY22 5.8M is forecasted for civilian pay expenses in this program element.

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

	FY 2021	FY 2022	FY 2023
<p><b>Title:</b> RQ-4 Ground Segment Modernization Program (GSMP)</p> <p><b>Description:</b> 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.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>-Conducting Test and Evaluation (DT&amp;E) of 2nd of 2 planned SW releases.</li> <li>-Conducting Operational Test and Evaluation (OT&amp;E) of system.</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>-Will conduct Operational Test and Evaluation of GSMP system.</li> <li>-Will conduct development and testing of high priority corrections of deficiencies found during DT&amp;E and/or OT&amp;E.</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <ul style="list-style-type: none"> <li>-Decrease due to development ramp down before production</li> </ul>	93.331	42.500	37.700
<p><b>Title:</b> RQ-4 Infrastructure</p> <p><b>Description:</b> 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, including funding for the 412th TW at Edwards AFB, AFOTEC, JTIC DCGS and other interoperability partners. This supports Waypoint Modification - Dynamic Mission Operations (DYNAMO).</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Supporting 2nd phase of Developmental Testing of GSMP</li> <li>- Supporting Operational Testing of GSMP</li> </ul>	69.947	40.624	31.101

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<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 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
- Supporting Enterprise Services/Flight Test Services and Comm System Upgrades to aircraft and ground stations			
<b><i>FY 2023 Plans:</i></b> -Will support Operational Testing of GSMP. -Will support completion of DYNAMO testing. -Will support Enterprise Services/Flight Test Services and Comm System Upgrades to aircraft and ground stations.			
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> -Funding decreased due to test support ramp down for final development projects.			
<b>Accomplishments/Planned Programs Subtotals</b>	163.278	83.124	68.801

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item HAWK00: RQ-4 Mods	3.350	3.205	1.286	-	1.286	30.056	9.087	9.637	0.373	0.000	56.994
• APAF 07 Line Item RQ4DIS: RQ-4 Post Production Support	1.750	24.592	40.845	-	40.845	30.090	0.000	-	-	0.000	97.277

**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 developing and delivering the system to the warfighter. 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.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force** **Date:** April 2022

<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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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
RQ-4 Ground Segment Modernization Program (GSMP)	SS/CPIF	Northrop Grumman Integrated Systems : San Diego, CA	0.000	81.489	Mar 2021	42.500	Oct 2021	37.700	Oct 2022	-		37.700	Continuing	Continuing	414.785
RQ-4 Infrastructure	Various	Various : Various	0.000	35.289	Mar 2021	25.034	Oct 2021	13.311	Oct 2022	-		13.311	Continuing	Continuing	203.878
RQ-4 Waypoint Modification	SS/CPIF	NGAS : San Diego, CA	0.000	29.000	Nov 2021	-		-		-		-	0.000	29.000	-
<b>Subtotal</b>			0.000	145.778		67.534		51.011		-		51.011	Continuing	Continuing	N/A

**Remarks**  
 Target Value of the RQ-4 EMD, IDIQ, Infrastructure and EPIC Contracts are not segregated by Budget Project Number.  
 Target Value of GSMP contract includes \$43.414M of funding in Budget Project Number 675147, RQ-4 Grnd Segment/Comm System

<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Non Prime Technical Support	Various	Various : Dayton, OH	0.000	1.290	Jan 2021	1.290	Jan 2022	1.290	Jan 2023	-		1.290	Continuing	Continuing	-
<b>Subtotal</b>			0.000	1.290		1.290		1.290		-		1.290	Continuing	Continuing	N/A

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

<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Test & Evaluation	MIPR	412 TW : Edwards AFB, CA	0.000	5.342	Feb 2021	10.000	Oct 2021	10.000	Oct 2022	-		10.000	Continuing	Continuing	-
<b>Subtotal</b>			0.000	5.342		10.000		10.000		-		10.000	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 2023 Air Force** **Date:** April 2022

<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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<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PSC: A&AS	Various	Various : Dayton, OH	0.000	4.200	Feb 2021	2.300	Oct 2021	3.500	Oct 2022	-		3.500	Continuing	Continuing	-
PSC: Other Government Costs	Various	Various : Dayton, OH	0.000	6.668	Oct 2020	2.000	Oct 2021	3.000	Oct 2022	-		3.000	Continuing	Continuing	-
<b>Subtotal</b>			0.000	10.868		4.300		6.500		-		6.500	Continuing	Continuing	N/A

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

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	0.000	163.278	83.124	68.801	-	68.801	Continuing	Continuing	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Air Force</b>		<b>Date:</b> April 2022
<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

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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

<b>RQ-4 Capability Enhancements</b>	
Ground Segment Modernization Program Development and Test	[REDACTED]
RQ-4 Infrastructure & Test	[REDACTED]

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<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 by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>RQ-4 Capability Enhancements</b>				
Ground Segment Modernization Program Development and Test	1	2021	1	2023
RQ-4 Infrastructure & Test	1	2021	4	2025