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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2017 Air Force **Date:** February 2016

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605458F / <i>Air &amp; Space Ops Center 10.2 RDT&amp;E</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	83.245	47.629	28.911	0.000	28.911	0.000	0.000	0.000	0.000	0.000	159.785
654945: <i>AOC 10.2 Development</i>	0.000	83.245	47.629	28.911	0.000	28.911	0.000	0.000	0.000	0.000	0.000	159.785
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**Program MDAP/MAIS Code:** N42

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

The Air Operations Center Weapon System (AOC WS), AN/USQ-163 Falconer, the senior element of the Theater Air Control System (TACS), is the weapon system the Commander, Air Force Forces (COMAFFOR) provides the Combined/Joint Force Air Component Commander (C/JFACC) for planning, executing, and assessing theater-wide air and space operations. The C/JFACC provides air, space and cyber support to the Combined/Joint Forces Commander (C/JFC) by coordinating, deconflicting and assessing the progress of various weapon systems to advance the C/JFC's campaign. The AOC WS develops operations strategy and planning documents. The weapon system also disseminates tasking orders; executes day-to-day peacetime and combat air, space and cyber operations; and provides rapid reaction to immediate situations by exercising positive control of friendly forces.

The AOC WS Increment 10.2 program keeps the AOC interoperable, certified, supportable, and compliant through the integration, testing and fielding of new capabilities and upgrades to the AOC WS baseline. The program supports mission requirements at Geographic and Functional AOCs, as well as Support and Manpower Augmentation units. To keep the AOC current and interoperable with the Combatant Commands (CCMD), cyber requirements, and fifth generation weapon system/ weapons, the AOC WS program plans to evolve the AOC through the integration and test of progressively improving capabilities. These activities ensure a system of systems engineering perspective for the AOC WS, and include weapon system standardization activities as defined by AOC WS requirements documents.

AOC Increment 10.2 received a Milestone B decision 11 October 2013. This project will provide for design, development, integration of 3rd party capabilities, and testing; as well as, build-up and fielding of the Help Desk (HD), Formal Training Unit (FTU), Combined Air Operations Center-experimental (CAOC-X) suite, and one geographic site.

Activities also include studies and analysis to support current program planning and execution, as well as future program planning, and transition to production and sustainment contract.

This program is in Budget Activity 5, System Development & Demonstration (SDD) because the program passed Milestone B and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full fielding decision.

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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>
Previous President's Budget	85.938	47.629	0.000	0.000	0.000
Current President's Budget	83.245	47.629	28.911	0.000	28.911
Total Adjustments	-2.693	0.000	28.911	0.000	28.911
• 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	-0.006	0.000			
• SBIR/STTR Transfer	-2.687	0.000			
• Other Adjustments	0.000	0.000	28.911	0.000	28.911

**Change Summary Explanation**

FY17: Funding increased to fund the completion of development and testing due to program slip beyond MS-C threshold.

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>
<p><b>Title:</b> AOC WS Inc 10.2 Prime Development</p> <p><b>Description:</b> AOC 10.2 infrastructure development and mission capability integration. Development of a robust, open, Net-Centric infrastructure with a Service Oriented Architecture (SOA). Conduct system maintenance and interoperability updates.</p> <p><b>FY 2015 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>- Continued contractor modernization and provided contractor support for development and operational testing, training, and initial site deployment. This included but is not limited to obtaining an Interim Authority to Test (IATT)</li> <li>- Prepared to obtain an Authority to Operate (ATO)</li> <li>- Conducted the contractor System Acceptance Test (SAT)</li> <li>- Conducted the Government Developmental Testing (DT), and the Operational Assessment. Additionally, bill of Material (BOM) procurement, pre-installation activities, site-preparations, and some on-site installation activities for the Initial Operational Test and Evaluation (IOT&amp;E) sites began.</li> </ul> <p><b>FY 2016 Plans:</b></p> <ul style="list-style-type: none"> <li>- Complete contractor Design/Development, achieve Milestone C, and provide contractor support for development and Operational Testing (OT), training, and initial site deployment, including but is not limited to the following.</li> </ul>	77.016	45.447	26.661

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>
<ul style="list-style-type: none"> <li>- Obtain an Authority to Operate (ATO)</li> <li>- Complete the Government Developmental Testing (DT) and Operational Assessment.</li> <li>- Initial Operational Test and Evaluation (IOT&amp;E) activities include conduct of OT Phase I at the Combined AOC-Experimental (CAOC-X), focused on operational suitability, and fielding to the Formal Training Unit (FTU).</li> <li><b>FY 2017 Plans:</b></li> <li>-Continue IOT&amp;E site installation with the Help Desk and first Geographic AOC (GEO #1).</li> <li>-Conduct OT phase II at GEO #1, focused on operational effectiveness.</li> <li>-Complete OT activities.</li> <li>-Obtain Full Deployment Decision.</li> <li>-Transfer to Long-Term Modification and Sustainment (LTM&amp;S) contract for sustainment.</li> </ul>				
<p><b>Title:</b> AOC WS Inc 10.2 Test and Evaluation</p> <p><b>Description:</b> Test and Evaluation</p> <p><b>FY 2015 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>- Planned and implemented comprehensive Modernization contractor testing (in-plant integration and test, functional testing, security testing, etc.), System Acceptance Testing, Developmental Test and Evaluation (DT&amp;E), and Operational Test and Evaluation (OT&amp;E) on the AOC 10.2 baseline and system updates, to include test planning, conducted test, and documentation review.</li> </ul> <p><b>FY 2016 Plans:</b></p> <ul style="list-style-type: none"> <li>- Plan and implement comprehensive Modernization contractor testing (in-plant integration and test, functional testing, security testing, etc.), System Acceptance Testing, DT&amp;E, and OT&amp;E on the AOC 10.2 baseline and system updates, to include test planning, conducting test, and documentation review.</li> </ul> <p><b>FY 2017 Plans:</b></p>		3.303	1.424	2.000

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2017 Air Force	<b>Date:</b> February 2016
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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2015	FY 2016	FY 2017
- Plan and implement comprehensive OT&E on the AOC 10.2 baseline and system updates, to include test planning, conducting test, and documentation review.			
<b>Title:</b> AOC WS Inc 10.2 Training	2.926	0.758	0.250
<b>Description:</b> Training			
<b>FY 2015 Accomplishments:</b> - Effort included the support of the Modernization effort for AOC 10.2 training analysis, planning, and development during Engineering & Manufacturing Development (EMD), to include both contractor-developed capabilities and supplemental training for contractor modified 3rd party capabilities. -- This also included curriculum and courseware / material development, instructor training, class / Computer Based Training conduct, and training surveys / analysis / updates / enhanced simulation capabilities.			
<b>FY 2016 Plans:</b> - Effort includes, but is not limited to, support of the Modernization effort for AOC 10.2 training analysis, planning, and development during EMD, to include both contractor-developed capabilities and supplemental training for contractor modified 3rd party capabilities. -- This includes curriculum and courseware / material development, instructor training, class / Computer Based Training conduct, and training surveys / analysis / updates / enhanced simulation capabilities.			
<b>FY 2017 Plans:</b> - Effort includes, but is not limited to, support of the Modernization effort for AOC 10.2 training analysis, planning, and development during Post Milestone C efforts (Production and Deployment) to include both contractor-developed capabilities and supplemental training for contractor modified 3rd party capabilities.			
<b>Accomplishments/Planned Programs Subtotals</b>	83.245	47.629	28.911

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>						
• RDTE: BA07: PE 0207410F: <i>Air and Space Operations Center Weapon System (AOC WS), Project 675117</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	264.584
• RDTE: BA04: PE 0604458F: <i>Air &amp; Space Ops Center</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	66.970

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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605458F / <i>Air &amp; Space Ops Center 10.2 RDT&amp;E</i>
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**D. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF BA03 Line Item # 834560: <i>Air Operations Center (AOC) 10.2</i>	0.000	14.846	30.623	0.000	30.623	11.844	0.000	0.000	0.000	36.500	93.813

**Remarks**

For OPAF BA03 Line Item # 834560, the FY16 PB described the Geographic AOC fielding plan with installations of 1 / 4 / 1 in FYs 16 / 17 / 18. AOC 10.2 development slips caused the Air Force to reconsider the fielding plan. The revised Geographic AOC fielding plan is 1 / 2 / 3 in FYs 16 / 17 / 18. The Air Force is evaluating the FY18 funding needs to complete this plan.

**E. Acquisition Strategy**

The acquisition strategy builds on existing capabilities using evolutionary acquisition to standardize, modernize and sustain the AOC. The initial capability was AOC WS Increment 10.0 which fielded the 10.0 configuration to five operational sites, plus a Help Desk and a Formal Training Unit. The second increment, Increment 10.1, upgraded these locations to an integrated baseline and fielded the baseline to additional operational and reserve units worldwide. The latest increment is AOC 10.2, which leverages the Cost Plus Incentive Fee (CPIF) AOC Modernization Contract, competitively awarded on 25 October 2011, covering initial development plus options for fielding, tech refresh, help desk and sustainment. The Modernization prime contractor is using a system of systems perspective and following systems engineering rigor to evolve AOC to a Net-Centric environment, compliant with DoD SOA standards. The AOC 10.2 Program Management Office (PMO) provides technical oversight to the AOC 10.2 Modernization effort, led by a Government AOC Weapon System (WS) Chief Engineer and a Modernization Lead Engineer. Additionally, significant technical expertise is provided by MITRE, MIT Lincoln Laboratory, and Engineering & Technology Acquisition Support Services contractors.

**F. Performance Metrics**

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 5				PE 0605458F / Air & Space Ops Center 10.2 RDT&E				654945 / AOC 10.2 Development							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
AOC 10.2 Modernization Government Furnished Equipment	Various	Various : Various	0.000	2.027	Dec 2014	0.000		1.140	Mar 2017	0.000		1.140	0.000	3.167	-
AOC 10.2 Modernization Contract	C/CPIF	Northrop Grumman : Herndon, VA	0.000	65.442	Oct 2014	38.884	Oct 2015	19.026	Nov 2016	0.000		19.026	0.000	123.352	212.958
AOC 10.2 Training	C/Various	Various : Various	0.000	2.926	Apr 2015	0.758	Jan 2016	0.250	May 2017	0.000		0.250	0.000	3.934	-
<b>Subtotal</b>			0.000	70.395		39.642		20.416		0.000		20.416	0.000	130.453	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Test	Various	Various : Various	0.000	3.303	May 2015	1.424	Jan 2016	2.000	Apr 2017	0.000		2.000	0.000	6.727	TBD
<b>Subtotal</b>			0.000	3.303		1.424		2.000		0.000		2.000	0.000	6.727	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
System Engineering	C/Various	MITRE : Bedford, MA	0.000	5.035	Oct 2014	2.413	Oct 2015	2.395	Oct 2016	0.000		2.395	0.000	9.843	TBD
Program Management Administration	C/Various	Various : Hanscom AFB, MA	0.000	4.512	Nov 2014	4.150	Oct 2015	4.100	Dec 2016	0.000		4.100	0.000	12.762	TBD
<b>Subtotal</b>			0.000	9.547		6.563		6.495		0.000		6.495	0.000	22.605	-

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2017 Air Force</b>								<b>Date:</b> February 2016			
<b>Appropriation/Budget Activity</b> 3600 / 5				<b>R-1 Program Element (Number/Name)</b> PE 0605458F / Air & Space Ops Center 10.2 RDT&E				<b>Project (Number/Name)</b> 654945 / AOC 10.2 Development			
	<b>Prior Years</b>	<b>FY 2015</b>		<b>FY 2016</b>		<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	0.000	83.245		47.629		28.911	0.000	28.911	0.000	159.785	-

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2017 Air Force		<b>Date:</b> February 2016
<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605458F / Air & Space Ops Center 10.2 RDT&E	<b>Project (Number/Name)</b> 654945 / AOC 10.2 Development

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
AOC Inc 10.2 Milestone C (JUN 2016)																												
AOC Inc 10.2 Full Deployment Decision (JUN 2017)																												
AOC Inc 10.2 Design/Development																												
AOC Inc 10.2 Fielding to CAOC-X / Development Test (DT) / Operational Test (OT) / Initial Operational Test and Evaluation (IOTE)																												
AOC Inc 10.2 Fielding to the Help Desk																												
AOC Inc 10.2 Fielding to the Formal Training Unit (FTU)																												
AOC Inc 10.2 Fielding to Geo #1 / OT Phase 2																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2017 Air Force		<b>Date:</b> February 2016
<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605458F / <i>Air &amp; Space Ops Center</i> 10.2 RDT&E	<b>Project (Number/Name)</b> 654945 / <i>AOC 10.2 Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AOC Inc 10.2 Milestone C (JUN 2016)	3	2016	3	2016
AOC Inc 10.2 Full Deployment Decision (JUN 2017)	3	2017	3	2017
AOC Inc 10.2 Design/Development	1	2015	1	2016
AOC Inc 10.2 Fielding to CAOC-X / Development Test (DT) / Operational Test (OT) / Initial Operational Test and Evaluation (IOTE)	4	2015	3	2017
AOC Inc 10.2 Fielding to the Help Desk	1	2017	2	2017
AOC Inc 10.2 Fielding to the Formal Training Unit (FTU)	4	2016	1	2017
AOC Inc 10.2 Fielding to Geo #1 / OT Phase 2	1	2017	2	2017

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