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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 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0605931F I B-2 Defensive Management 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
Total Program Element	726.260	261.162	315.615	194.570	0.000	194.570	213.844	136.704	20.809	0.181	0.000	1,869.145
653844: B-2 DMS	726.260	261.162	315.615	194.570	0.000	194.570	213.844	136.704	20.809	0.181	0.000	1,869.145
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 431												
A. Mission Description and Budget Item Justification												
<p>The Defensive Management System Modernization (DMS-M) program enhances the B-2 direct attack capability by addressing emerging and future 21st century threats and robust modern Integrated Air Defense Systems (IADS). By leveraging "state-of-the-art" electronic warfare antennae, processors, controllers and displays, B-2 aircrews will realize unprecedented situational battlespace awareness and dynamic, real-time threat avoidance in the most complex radio frequency emitter environments. The inherent increased sensitivity of the modernized DMS over the legacy system, with increased processing power, will build a battlespace picture that could be shared with joint force platforms by on-board communication systems. The current B-2 DMS was designed in the 1980s and has not received any upgrades to date. Also, many components of the legacy DMS are not supportable and will severely impact aircraft availability without significant investment in reliability and maintainability upgrades.</p>												
<p>During development, the engineering baseline will be finalized and four production representative kits will be procured to support integrated development/operational test and a pre-Milestone C Operational Assessment, as well as B-2 Nuclear Certification testing. After completion of the Milestone C decision, Low Rate Initial Production will begin in FY 2020. After a successful Operational Test and Evaluation, the Full Rate Production decision will occur in FY 2021. Diminishing manufacturing sources and materiel shortages for affected components and subassemblies, will be addressed to protect the planned production program by mitigating unplanned part redesign and requalification risks.</p>												
<p>Funds may be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness.</p>												
<p>BA5 - This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.</p>												

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B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	271.961	315.615	265.910	0.000	265.910
Current President's Budget	261.162	315.615	194.570	0.000	194.570
Total Adjustments	-10.799	0.000	-71.340	0.000	-71.340
• 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	-1.450	0.000			
• SBIR/STTR Transfer	-9.349	0.000			
• Other Adjustments	0.000	0.000	-71.340	0.000	-71.340
Change Summary Explanation					
FY16 was reduced \$1.450M for higher Air Force priorities by way of Below Threshold Reprogramming, and reduced \$9.349M for Small Business Innovation Research					
FY18 was reduced \$71.34M as part of updating the program's acquisition strategy.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: B-2 Defensive Management System Modernization (DMS-M) Tech Development Phase 2	29.000	0.000	0.000	0.000	0.000
Description: DMS Modernization program develops improved aircrew situational awareness through replacement of passive antennas, receiver/processors, and display processors. DMS-M also addresses critical system shortfalls, and improves legacy DMS component repair issues.					
FY 2016 Accomplishments: Completed the Technology Development Phase 2 effort.					
FY 2017 Plans: N/A					
FY 2018 Base Plans: N/A					
FY 2018 OCO Plans: N/A					
Title: B-2 Defensive Managment System Modernization (DMS-M) EMD	232.162	315.615	194.570	0.000	194.570

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C. Accomplishments/Planned Programs (\$ in Millions)						FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	
<p>Description: DMS Modernization program develops improved aircrew situational awareness through replacement of passive antennas, receiver/processors, and display processors. DMS-M also addresses critical system shortfalls, and improves legacy DMS component repair issues.</p> <p>FY 2016 Accomplishments: Awarded the EMD contract and initiated the EMD Phase.</p> <p>FY 2017 Plans: Install the first DMS-M kit on the test aircraft, conduct Low Observable baseline flights, accomplish the Integrated Functional Capability certification, and complete ground testing in preparation for the start of Developmental Test and Evaluation (DT&E) in FY18.</p> <p>FY 2018 Base Plans: Continue working EMD effort and start of Developmental Test and Evaluation (DT&E) in FY18.</p> <p>FY 2018 OCO Plans: N/A</p>											
Accomplishments/Planned Programs Subtotals						261.162	315.615	194.570	0.000	194.570	
D. 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: BA07: Line Item #b2dms0: B-2 DMS	0.000	0.000	0.000	0.000	0.000	49.884	280.471	365.563	80.187	0.000	776.105
• APAF: BA07: Line Items # 000999: Acft Initial Spares & Repairs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.956	15.256	0.00	30.181
• APAF: BA07: Line Item #000075: Other Production Charges	0.000	0.000	0.000	0.000	0.000	0.000	1.515	12.522	12.772	0.00	26.759
Remarks											
E. Acquisition Strategy											
Key elements of the overall acquisition strategy include: use of sole source contract with a prime/integrating contractor (Northrop Grumman) who will perform subsystem and component competitions where appropriate, use of cost plus incentive fee (CPIF) development contracts, and the combination of developmental upgrades with											

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software sustainment blocks to minimize the number of software releases, aircraft downtime, and differences in fielded configurations. The government will encourage the prime contractor to compete subsystems and key components to reduce cost and risk.		
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: FY 2018 Air Force													Date: May 2017		
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0605931F / <i>B-2 Defensive Management System</i>				Project (Number/Name) 653844 / <i>B-2 DMS</i>					

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
Air Vehicle - Technology Development	SS/CPFF	Various : Various	700.500	29.000	Oct 2015	0.000		0.000		0.000		0.000	0.000	729.500	-
Air Vehicle - Engineering and Manufacturing Development (EMD)	SS/CPIF	Various : Various	0.000	216.859	Mar 2016	292.616	Dec 2016	150.008	Oct 2017	0.000		150.008	311.413	970.896	-
Subtotal			700.500	245.859		292.616		150.008		0.000		150.008	311.413	1,700.396	-

Remarks

Northrop-Grumman, El Segundo, CA is the prime contractor and integrator.

The Air Vehicle EMD contract was signed in March 2016 with an early effective date of February 2016.

Major subsystem vendors are:
 Electronic Support Measures: BAE, Nashua NH
 Advanced Graphics Processor: Lockheed-Martin, Owego, NY
 Band 1 - 3 antennas: Randtron, Menlo Park CA
 Band 4 antenna: Ball Aerospace, Westminster, CO

The acquisition phase formerly known as Technology Development (TD) is now referred to as Technology Maturation and Risk Reduction (TMRR)

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
Trainers	C/CPIF	WPAFB : Dayton, OH	0.000	0.000		0.000		14.600	Dec 2017	0.000		14.600	14.000	28.600	-
Mission Planning	C/CPIF	Hanscom : Boston, MA	0.000	0.000		0.000		12.600	Nov 2017	0.000		12.600	0.000	12.600	-
Subtotal			0.000	0.000		0.000		27.200		0.000		27.200	14.000	41.200	-

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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
Government Test	MIPR	AFFTC : Various	4.064	4.300	Jan 2016	13.062	Jan 2017	3.300	Oct 2017	0.000		3.300	38.057	62.783	-
Subtotal			4.064	4.300		13.062		3.300		0.000		3.300	38.057	62.783	-
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	Various	Various : Various	21.696	11.003	Dec 2015	9.937	Dec 2016	14.062	Nov 2017	0.000		14.062	8.068	64.766	-
Subtotal			21.696	11.003		9.937		14.062		0.000		14.062	8.068	64.766	-
			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			726.260	261.162		315.615		194.570		0.000		194.570	371.538	1,869.145	-
Remarks															
Northrop-Grumman, the prime contractor for the B-2 weapon system, is the integrator and major contractor for B-2 DMS activities.															

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force			Date: May 2017		
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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
DMS-M Milestone B Decision																												
DMS-M EMD Contract Award																												
DMS-M EMD																												
DMS-M Critical Design Review																												
DMS-M Combined Developmental Test / Operational Test (DT/OT)																												
DMS-M Milestone C - Low Rate Initial Production (LRIP) Decision																												
DMS-M Full Rate Production (FRP) Decision																												
DMS-M Certification of Airworthiness																												

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0605931F / <i>B-2 Defensive Management System</i>	Project (Number/Name) 653844 / <i>B-2 DMS</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DMS-M Milestone B Decision	2	2016	2	2016
DMS-M EMD Contract Award	2	2016	2	2016
DMS-M EMD	2	2016	1	2020
DMS-M Critical Design Review	4	2017	4	2017
DMS-M Combined Developmental Test / Operational Test (DT/OT)	4	2018	1	2021
DMS-M Milestone C - Low Rate Initial Production (LRIP) Decision	1	2020	1	2020
DMS-M Full Rate Production (FRP) Decision	1	2021	1	2021
DMS-M Certification of Airworthiness	2	2021	3	2022