Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy												Date: February 2015
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0604402N *I Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	1,414.771	24.893	35.877	-	-	-	-	-	-	-	-	1,475.541
3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	1,414.771	24.893	35.877	-	-	-	-	-	-	-	-	1,475.541
Program MDAP/MAIS Code: P388												

A. Mission Description and Budget Item Justification

The 2005 Quadrennial Defense Review published February 2006 and OSD Advanced Technology & Logistics Executive Committee Memorandum of February 2006 supported direction to restructure the Joint Unmanned Combat Air System (UCAS) program into a new Navy UCAS program. The Navy UCAS program will develop an unmanned, longer-range, carrier-based aircraft capable of being air-refueled to provide greater standoff capability, to expand payload and launch options, and to increase naval reach and persistence. The Navy was directed to demonstrate carrier operations, including Autonomous Aerial Refueling, of a Low Observable (LO) planform UCAS and to mature required technologies to a Technology Readiness Level-6; which, is required for a potential follow on acquisition program.

The Navy UCAS, designed for autonomous launch and recovery as well as operations in the Carrier Control Area, is comprised of an Air Vehicle Segment, a Mission Control Segment (MCS) and a government led Aircraft Carrier Integration Segment. The scope of the Navy UCAS effort includes design, development, integration, and validation of an unmanned, LO planform Air Vehicle Segment and MCS in the land-based and shipboard environments. Evaluations will be conducted to investigate MCS interfaces with shipboard systems such as Primary Flight Control displays, Landing Safety Officer displays, and Carrier Air Traffic Control Center stations.

The Navy UCAS program will be structured to match program resources to United States Navy objectives and constraints with the goals of identifying and maturing critical technologies and reducing the risk of carrier integration of a UCAS. Candidate Technology Maturation efforts include transformational communications, advanced integrated propulsion, aircraft carrier suitable materials, LO sensors and apertures, sense and avoid functionality (in an LO environment), autonomous operations (software algorithms and interfaces), and computer resource data storage and access systems. Modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs are being developed as a result of the demonstration. Maturation of candidate technologies support the evaluation of alternatives needed for a future milestone decision.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy	Date: February 2015
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0604402N *I Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	20.961	35.949	-	-	-
Current President's Budget	24.893	35.877	-	-	-
Total Adjustments	3.932	-0.072	-	-	-
• Congressional General Reductions	-	-0.072			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	4.149	-			
• SBIR/STTR Transfer	-0.217	-			

Change Summary Explanation

Technical: N/A

Schedule: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	Project (Number/Name) 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	1,414.771	24.893	35.877	-	-	-	-	-	-	-	-	1,475.541
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

FY14 program plan reflects Chief of Naval Operations and Secretary of Navy direction to continue the program to include additional test and at-sea periods. FY15 funding continues demonstration and integration efforts as directed by Chief of Naval Operations and Secretary of Navy.

A. Mission Description and Budget Item Justification

The Navy Unmanned Combat Air System (UCAS), designed for autonomous launch and recovery as well as operations in the Carrier Control Area, is comprised of an Air Vehicle Segment, a Mission Control Segment (MCS) and a government led Aircraft Carrier Integration Segment. The scope of the Navy UCAS effort includes design, development, integration, and validation of an unmanned, Low Observable (LO) planform Air Vehicle Segment and MCS in the land-based and shipboard environments. Evaluations will be conducted to investigate MCS interfaces with shipboard systems such as Primary Flight Control displays, Landing Safety Officer (LSO) displays, and Carrier Air Traffic Control Center (CATCC) stations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Product Development	16.355	30.486	-	-	-
Articles:	-	-	-	-	-
Description: The primary effort in the Navy UCAS program is design, development, integration and validation of Air Vehicle Segment, MCS and government led Aircraft Carrier Segment leading to a Carrier demonstration of an unmanned, LO planform UCAS system, and development of internal/external interface documents. In addition, design and development of hardware/software to support Autonomous Aerial Refueling (AAR) will be conducted. Shipboard evaluation of the Navy UCAS includes integration of the Navy UCAS with shipboard systems such as Primary Flight Control displays, LSO displays and CATCC stations.					
FY 2014 Accomplishments: Continued AAR integration efforts. Continue Navy UCAS demonstration activities to include additional test and at-sea period.					
FY 2015 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continue demonstration and integration efforts as directed by Chief of Naval Operations and Secretary of the Navy. ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A					
Title: Test and Evaluation Support	5.833	4.020	-	-	-
Articles:	-	-	-	-	-
FY 2014 Accomplishments: Continued Navy UCAS demonstration activities to include additional test and at-sea period. ***FY 2015 Plans:*** Continue UCAS Demonstration objectives as directed by Chief of Naval Operations and Secretary of the Navy. ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A					
Title: Management	2.705	1.371	-	-	-
Articles:	-	-	-	-	-
FY 2014 Accomplishments: Government management, engineering, and logistics support. ***FY 2015 Plans:*** Government management, engineering, and logistics support. ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	24.893	35.877	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

In the 2005 Quadrennial Defense Review, the Navy was directed to restructure the Joint Unmanned Combat Air System (UCAS) program and develop an unmanned, longer-range carrier-based aircraft capable of being air-refueled to provide greater aircraft carrier standoff capability, to expand payload and launch options, and to increase naval reach and persistence. The primary goal is risk reduction for carrier integration while developing the critical data necessary to support a potential follow on acquisition milestone decision. The Navy UCAS effort will focus on designing, developing, and evaluating the core capabilities which safely demonstrate carrier interoperability. Currently, primary hardware development for the Navy UCAS effort is being performed under a Federal Acquisition Regulation based, cost plus incentive fee-type contract competitively awarded to a single contractor.

E. Performance Metrics

Complete airworthiness and envelope expansion testing. Conduct shore-based carrier suitability testing. Conduct F/A-18D surrogate aircraft testing with Nimitz class aircraft carrier. Conduct at sea flight test of X-47B air vehicles. Demonstrate Autonomous Aerial Refueling.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aviation/ Ship Integration	C/CPFF	Rockwell/AFRL : Rome, NY	11.128	0.624	Nov 2013	0.104	Mar 2015	-		-		-	-	11.856	11.856
Aviation/Ship Integration	WR	NAWCAD : MD	100.424	10.350	Nov 2013	5.216	Nov 2014	-		-		-	-	115.990	-
Aviation/Ship Integration	C/CPIF	Various : Various	5.985	0.152	Jan 2014	-		-		-		-	-	6.137	6.137
Air Vehicle Integration	C/CPIF	Northrop Grumman Corporation : CA	43.035	3.635	Jun 2014	16.401	Nov 2014	-		-		-	-	63.071	63.071
Systems Engineering	WR	NAWCAD : MD	62.466	1.188	Nov 2013	8.603	Nov 2014	-		-		-	-	72.257	-
Product Development	Various	Various : Various	116.830	0.406	Dec 2013	0.162	Dec 2014	-		-		-	-	117.398	-
Prior year Prod Dev cost no longer funded in the FYDP	Various	Various : Various	927.628	-		-		-		-		-	-	927.628	-
		Subtotal	1,267.496	16.355		30.486		-		-		-	-	1,314.337	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior year Support cost no longer funded in the FYDP	Various	Various : Various	20.861	-		-		-		-		-	-	20.861	-
		Subtotal	20.861	-		-		-		-		-	-	20.861	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD : MD	43.904	5.542	Nov 2013	3.887	Nov 2014	-		-		-	-	53.333	-
Test & Evaluation	Various	Various : Various	1.474	0.291	Nov 2013	0.133	Nov 2014	-		-		-	-	1.898	-
Prior year T&E cost no longer funded in the FYDP	Various	Various : Various	10.297	-		-		-		-		-	-	10.297	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	55.675	5.833		4.020		-		-		-	-	65.528	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor SEPM Support	C/CPIF	Various : Various	24.583	0.988	Jan 2014	0.310	Jan 2015	-		-		-	-	25.881	25.881
Government Engineering Support	WR	NAWCAD : MD	25.164	1.467	Nov 2013	0.911	Nov 2014	-		-		-	-	27.542	-
Program Management Support	WR	NAWCAD : MD	18.246	0.250	Nov 2013	0.150	Nov 2014	-		-		-	-	18.646	-
Prior Year Mgmt cost no longer funded in the FYDP	Various	Various : Various	2.746	-		-		-		-		-	-	2.746	-
		Subtotal	70.739	2.705		1.371		-		-		-	-	74.815	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,414.771	24.893		35.877		-		-		-	-	1,475.541	-

Remarks

FY14 program plan reflects Chief of Naval Operations and Secretary of Navy direction to continue the program to include additional test and at-sea periods. FY15 funding continues demonstration and integration efforts as directed by Chief of Naval Operations and Secretary of Navy.

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*

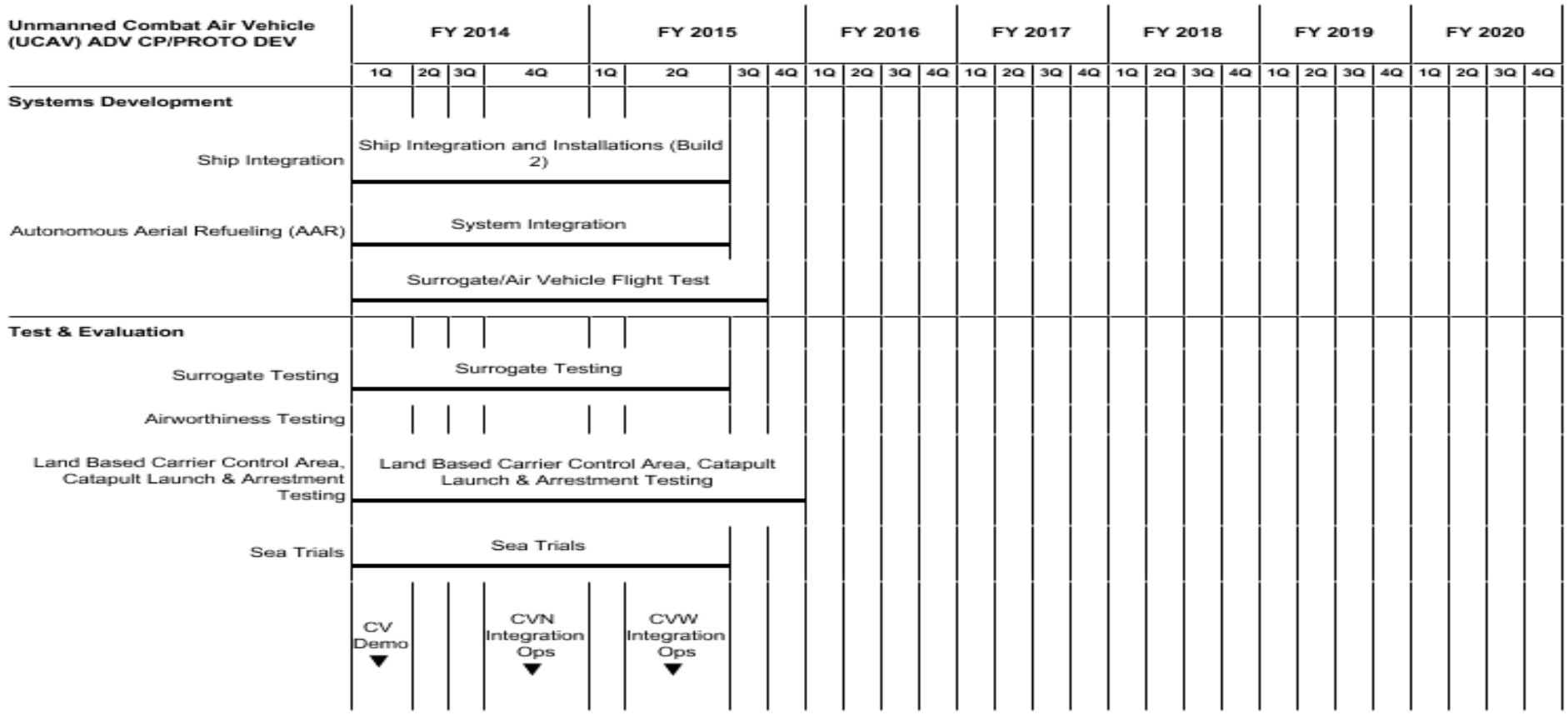

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Unmanned Combat Air Vehicle (UCAV) ADV CP/PROTO DEV				
Systems Development: Ship Integration: Build 2	1	2014	2	2015
Systems Development: Autonomous Aerial Refueling (AAR): System Integration - AAR	1	2014	2	2015
Systems Development: Autonomous Aerial Refueling (AAR): Surrogate/Air Vehicle Flight Test - AAR	1	2014	3	2015
Test & Evaluation: Surrogate Testing: Surrogate Testing	1	2014	2	2015
Test & Evaluation: Land Based Carrier Control Area, Catapult Launch & Arrestment Testing: Land Based Carrier Control Area, Catapult Launch & Arrestment Testing	1	2014	4	2015
Test & Evaluation: Sea Trials: Sea Trials	1	2014	2	2015
Test & Evaluation: Sea Trials: CV Demonstration	1	2014	1	2014
Test & Evaluation: Sea Trials: CVN Integration Ops	4	2014	4	2014
Test & Evaluation: Sea Trials: CVW Integration Ops	2	2015	2	2015