Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy											DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	423.996	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	620.668
4020: *BAMS UAS*	420.405	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	611.709
9999: *Congressional Adds*	3.591	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.959

A. Mission Description and Budget Item Justification

This program element provides for the development of endurance-type Unmanned Aircraft Systems (UAS) that will provide warfighters with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) capability.

Broad Area Maritime Surveillance (BAMS) Unmanned Aircraft System (UAS)
BAMS is a High Altitude-Long Endurance Unmanned Aircraft System designed to provide Fleet and Combatant Commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. Envisioned as an unmanned adjunct to the P-8A Multi-Mission Maritime Aircraft (MMA), and crucial to the recapitalization of Navy's airborne maritime ISR capability, the system will seek to leverage Maritime Patrol and Reconnaissance Force (MPRF) manpower, training and maintenance efficiencies.

The BAMS UAS air vehicle is based on Northrop Grumman's Block 20 Global Hawk and features sensors designed to provide near worldwide coverage through a network of five CONUS and OCONUS orbits, with sufficient air vehicles to remain airborne for 24 hours a day, 7 days a week, out to ranges of 2000 nautical miles. Onboard sensors will provide detection, classification, tracking and identification of maritime targets and include maritime radar, electro-optical/infrared (EO/IR), and Electronic Support Measures (ESM) systems. Additionally, BAMS will have a communications relay capability designed to link dispersed forces in the theater of operations and serve as a node in the Navy's FORCEnet strategy. Tactical-level data analysis will occur in real-time at shore-based Mission Control sites connected to the air vehicle via satellite communications. Further intelligence exploitation can be conducted at Fleet shore-based sites or aboard Aircraft Carriers and other ships in the sea base.

BAMS UAS will play a significant role in the Sea Shield and FORCEnet pillars of Sea Power 21. In its Sea Shield role, the system will rely on its key attribute of persistence to provide the supported COCOM or Fleet Commander with unparalleled situational awareness of the maritime battle space as it develops and sustains the Common Operational Tactical Picture (COTP). The system will also serve as a Fleet Response Plan enabler, while acting as a trip wire for Intelligence Preparation of the Environment (IPE). Additionally, BAMS UAS will be a FORCEnet enabler and relay platform, directly connected to both the Global Information Grid (GiG) and the DCGS-N Information Backbone (DIB).

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305205N: *Endurance Unmanned Aer Veh*

Note: Starting In FY10, BAMS is budgeted for in PE 0305220N: RQ-4 UAV.

Congressional Adds
Advanced Airship Flying Laboratory.
The Advanced Airship Flying Laboratory provides an airship-based capability to develop, test and demonstrate airborne mission systems equipment (Command, Control, Communications, Computers and Intelligence (C4I) and Infrared Search and Track (IRST)). Allows studies for development of a modernized naval airship featuring digital flight controls, vectored thrust and remotely piloted capabilities.

Skybus 80k and 130k LTA-UAS Multirole Technologies
Development, test, design and build of the Skybus 80K will provide a platform to evaluate airship capability in performing multirole, persistent ISR and long-dwell missions in both hostile and non-threatening environments.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	431.801	0.000	0.000	0.000	0.000
Current President's Budget	423.996	0.000	0.000	0.000	0.000
Total Adjustments	-7.805	0.000	0.000	0.000	0.000
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-9.800	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Congressional Recision Adjustments	-0.005	0.000	0.000	0.000	0.000
• Congressional Add Adjustments	2.000	0.000	0.000	0.000	0.000

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 9999: *Congressional Adds*		
Congressional Add: *Advanced Airship Flying Laboratory, Phase II (SEN*	1.596	0.000
Congressional Add: *Skybus 80k and 130k LTA-UAS Multirole Technologies*	1.995	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Navy	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305205N: *Endurance Unmanned Aer Veh*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add Subtotals for Project: 9999	3.591	0.000
Congressional Add Totals for all Projects	3.591	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: System Functional Review moved from 4Q to 3Q FY09.

FY11 from previous President's Budget is shown as zero because no FY11-15 data was presented in President's Budget 2010.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
4020: *BAMS UAS*	420.405	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	611.709
Quantity of RDT&E Articles	2	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

BAMS is a High Altitude-Long Endurance Unmanned Aircraft System designed to provide Fleet and Combatant Commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. Envisioned as an unmanned adjunct to the P-8A Multi-Mission Maritime Aircraft (MMA), and crucial to the recapitalization of Navy's airborne maritime ISR capability, the system will seek to leverage Maritime Patrol and Reconnaissance Force (MPRF) manpower, training and maintenance efficiencies.

The BAMS UAS air vehicle is based on Northrop Grumman's Block 20 Global Hawk and features sensors designed to provide near worldwide coverage through a network of five CONUS and OCONUS orbits, with sufficient air vehicles to remain airborne for 24 hours a day, 7 days a week, out to ranges of 2000 nautical miles. Onboard sensors will provide detection, classification, tracking and identification of maritime targets and include maritime radar, electro-optical/infrared (EO/IR), and Electronic Support Measures (ESM) systems. Additionally, BAMS will have a communications relay capability designed to link dispersed forces in the theater of operations and serve as a node in the Navy's FORCEnet strategy. Tactical-level data analysis will occur in real-time at shore-based Mission Control sites connected to the air vehicle via satellite communications. Further intelligence exploitation can be conducted at Fleet shore-based sites or aboard Aircraft Carriers and other ships in the sea base.

BAMS UAS will play a significant role in the Sea Shield and FORCEnet pillars of Sea Power 21. In its Sea Shield role, the system will rely on its key attribute of persistence to provide the supported COCOM or Fleet Commander with unparalleled situational awareness of the maritime battle space as it develops and sustains the Common Operational Tactical Picture (COTP). The system will also serve as a Fleet Response Plan enabler, while acting as a trip wire for Intelligence Preparation of the Environment (IPE). Additionally, BAMS UAS will be a FORCEnet enabler and relay platform, directly connected to both the Global Information Grid (GiG) and the DCGS-N Information Backbone (DIB).

The BAMS UAS will be an evolutionary based acquisition, using an incremental development approach. Two Mission Need Statements (MNSs) support the requirement; 1) BAMS and Littoral Armed ISR MNS, and 2) Long Endurance, Reconnaissance, Surveillance and Target Acquisition (RSTA) Capability MNS. The BAMS UAS Capabilities Development Document (CDD) was approved May 2007 by the Joint Requirements Oversight Council (JROC).

Note: Starting in FY10, BAMS is budgeted for in PE 0305220N: RQ-4 UAV.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Product Development Awarded contract in FY08 to initiate the Engineering and Manufacturing Development (EMD) phase effort. The Prime Contractor is responsible for overall system development and performance, as well as associated management, engineering and logistics activities. *FY 2009 Accomplishments:* Initiated two test articles. Continued EMD, including Government engineering support related to EMD.	397.018	0.000	0.000	0.000	0.000
ILS, Support, Studies & Analysis Integrated Logistics Support, Studies and Analysis. *FY 2009 Accomplishments:* Continued integrated logistics support, technical engineering services, sensor risk reduction, logistics supportability analyses and environmental planning, modeling and simulation, development of manpower and basing assessments, and development of technical data to support fielding of the BAMS UAS capabilities.	11.992	0.000	0.000	0.000	0.000
Program Management Program Management Support and Travel. *FY 2009 Accomplishments:* Developed milestone and acquisition-related documentation; capability refinement and open systems architecture development; resource justification; affordability assessments and cost analyses; risk reduction and risk management; system integration and interoperability planning; technology maturity reviews; program protection planning; corrosion prevention planning; anti-tamper provisioning planning; and Joint and International Cooperation efforts.	5.557	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Test & Evaluation	5.838	0.000	0.000	0.000	0.000
Test and Evaluation efforts. *FY 2009 Accomplishments:* Continued test and evaluation support activities to allow test and fielding of the BAMS UAS.					
Accomplishments/Planned Programs Subtotals	420.405	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• RDTEN/0305220N: *RQ-4 UAV*	0.000	439.010	529.250	0.000	529.250	540.992	695.924	224.156	122.169	76.600	2,628.101
• APN-4/044200: *RQ-4 UAV (BAMS UAV)*	0.000	0.000	0.000	0.000	0.000	0.000	48.264	583.068	601.030	8,756.248	9,988.610
• APN-6/060510: *Initial Spares RQ-4 UAV (BAMS UAV)*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.599	90.584	1,273.845	1,394.028
• MILCON/0816376N: *BAMS UAS Operator Training Facility*	0.000	0.000	42.211	0.000	42.211	0.000	0.000	0.000	0.000	0.000	42.211
• MILCON/0815976N: *Broad Area Maritime Surveillance T&E Facility*	0.000	0.000	0.000	0.000	0.000	2.285	0.000	57.686	54.280	251.864	366.115

D. Acquisition Strategy

The BAMS UAS is an evolutionary-based acquisition, using an incremental development approach. During the pre-Milestone B phase, the program performed technical risk reduction through studies and demonstrations, Engineering and Manufacturing Development (EMD) contract preparation, and Milestone B documentation development activities. Milestone B occurred on 8 April 2008 and EMD award occurred on 22 April 2008. The EMD contract was based on a competitive selection process for a Prime Contractor.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305205N: *Endurance Unmanned Aer Veh*	**PROJECT** 4020: *BAMS UAS*

The BAMS UAS program office is pursuing joint efficiency with the Air Force on the Global Hawk UAS. However, the integration of the BAMS UAS into the Maritime Patrol Reconnaissance Force (MPRF) and the unique maritime sensors employed dictate a Navy-led acquisition program focused on joint efficiencies, where possible.

E. Performance Metrics

Successfully achieve Critical Design Review, Flight Readiness Review, Milestone C, Integrated Test, and Operational Evaluation.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPAF	Northrop Grumman Bethpage, NY	428.333	0.000		0.000		0.000		0.000	0.000	428.333	428.333
Systems Engineering	WR	Various Various	81.577	0.000		0.000		0.000		0.000	0.000	81.577	Continuing
Award Fees	C/CPAF	Northrop Grumman Bethpage, NY	5.294	0.000		0.000		0.000		0.000	0.000	5.294	5.294
		Subtotal	515.204	0.000		0.000		0.000		0.000	0.000	515.204	433.627

Remarks

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various/ Various	Various Various	11.157	0.000		0.000		0.000		0.000	0.000	11.157	Continuing
Integrated Logistics Support	WR	Various Various	11.603	0.000		0.000		0.000		0.000	0.000	11.603	Continuing
Studies & Analyses	Various/ Various	Various Various	23.659	0.000		0.000		0.000		0.000	0.000	23.659	Continuing
		Subtotal	46.419	0.000		0.000		0.000		0.000	0.000	46.419	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various/ Various	Various Various	9.975	0.000		0.000		0.000		0.000	0.000	9.975	Continuing
		Subtotal	9.975	0.000		0.000		0.000		0.000	0.000	9.975	

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPFF	Mitre McClean, VA	0.756	0.000		0.000		0.000		0.000	0.000	0.756	0.756
		Various	15.795	0.000		0.000		0.000		0.000	0.000	15.795	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 4020: *BAMS UAS*

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various/ Various	Various											
Travel	WR	Various Various	0.707	0.000		0.000		0.000		0.000	0.000	0.707	Continuing
		Subtotal	17.258	0.000		0.000		0.000		0.000	0.000	17.258	0.756

Remarks

Travel funding contract type is TO.

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	588.856	0.000		0.000		0.000		0.000	0.000	588.856	434.383

Remarks

Starting in FY10, BAMS is budgeted for in PE 0305220N.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305205N: *Endurance Unmanned Aer Veh*	**PROJECT** 4020: *BAMS UAS*

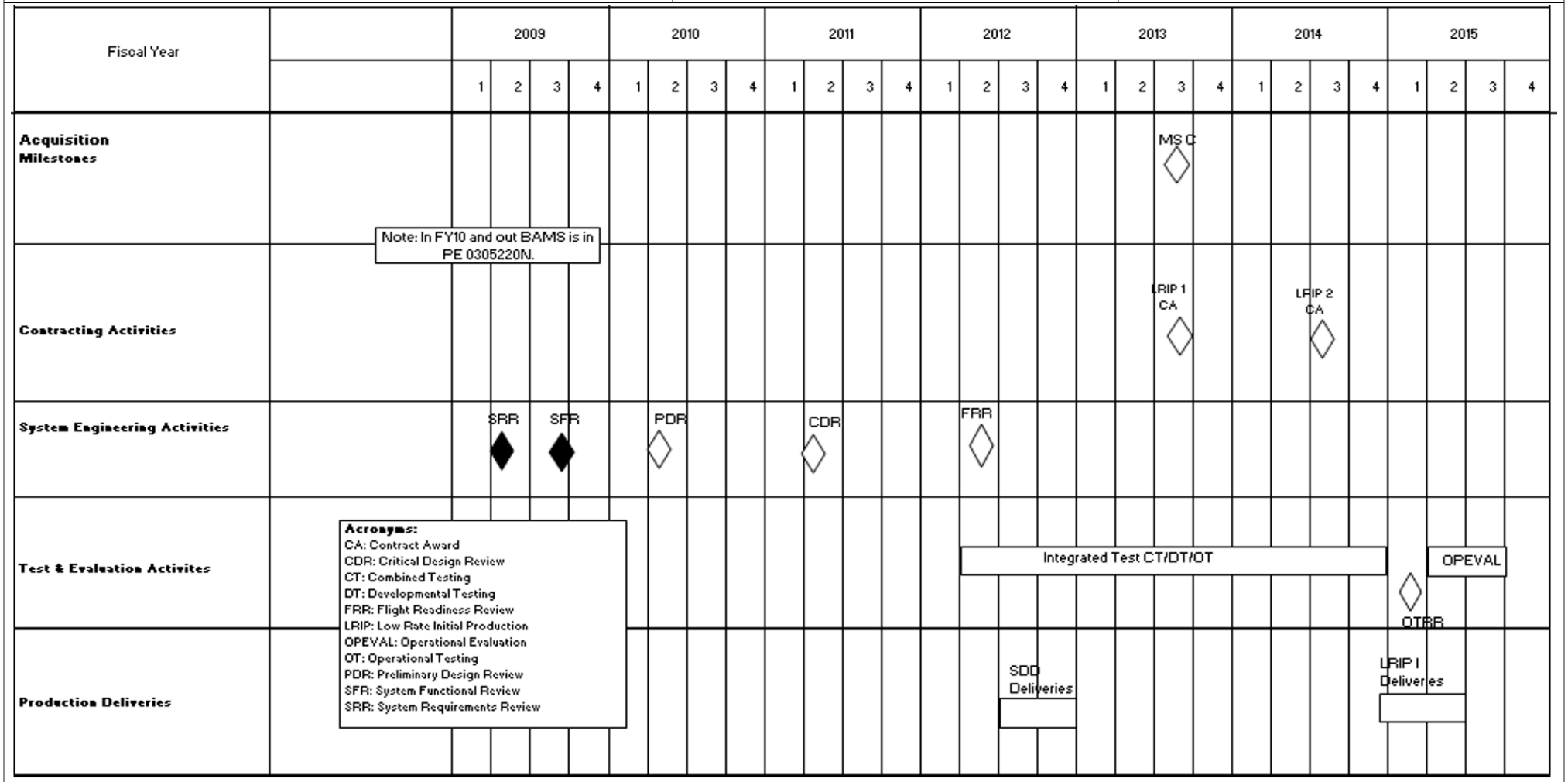

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305205N: *Endurance Unmanned Aer Veh*	**PROJECT** 4020: *BAMS UAS*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
System Readiness Review (SRR)	2	2009	2	2009
System Functional Review (SFR)	3	2009	3	2009
Preliminary Design Review (PDR)	2	2010	2	2010
Critical Design Review (CDR)	2	2011	2	2011
Flight Readiness Review (FRR)	2	2012	2	2012
SDD Engineering Development Midel (EDM) Delivery	3	2012	4	2012
Integrated Test CT/DT/OT	2	2012	4	2014
Milestone C (MS-C)	3	2013	3	2013
Low Rate Initial Production 1 (LRIP 1) CA	3	2013	3	2013
Low Rate Initial Production 2 (LRIP 2) CA	3	2014	3	2014
Low Rate Initial Production 1 (LRIP 1) Delivery	4	2014	2	2015
Operational Test Readiness Review (OTRR)	1	2015	1	2015
OPEVAL	2	2015	3	2015

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
9999: *Congressional Adds*	3.591	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.959
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Adds.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Advanced Airship Flying Laboratory, Phase II (SEN *FY 2009 Accomplishments:* Continued development of new technologies to advance modern airships, such as digital automated flight controls, bow thrusters, and heavy fuel engines. Government Engineering Support, Contractor Support Services, and Travel.	1.596	0.000
Congressional Add: Skybus 80k and 130k LTA-UAS Multirole Technologies *FY 2009 Accomplishments:* Development and testing of the Skybus 80K and 130K. Government Engineering Support, Contractor Support Services, and Travel.	1.995	0.000
Congressional Adds Subtotals	3.591	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Navy		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305205N: *Endurance Unmanned Aer Veh*	PROJECT 9999: *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

E. Performance Metrics

Not required for Congressional Adds.