Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*					R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aer Vehicles*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	164.576	9.353	9.066	8.381	-	8.381	8.513	8.636	8.887	8.997	Continuing	Continuing
2478: *Tactical Control System*	164.576	9.353	9.066	8.381	-	8.381	8.513	8.636	8.887	8.997	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Tactical Unmanned Aerial Vehicle is a Joint Military Intelligence Program

This Program Element (PE) includes non-lethal joint tactical Unmanned Aerial Vehicle system support for DoD to provide the warfighters with the capability for day/ night aerial Reconnaissance, Surveillance and Target Acquisition, intelligence, communications/data relay, and minefield detection in limited adverse weather. This PE includes the Tactical Control System (TCS) which provides a multi-level, scalable, and flexible control of the air vehicles and payloads, as well as direct receipt of unmanned aerial vehicles imagery.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	9.353	9.066	8.387	-	8.387
Current President's Budget	9.353	9.066	8.381	-	8.381
Total Adjustments	0.000	0.000	-0.006	-	-0.006
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	-0.006	-	-0.006

Change Summary Explanation

Schedule:

Updated Tactical Contraol System Schedule to coincide with Vertical Take-off Unmanned Aerial Vehicle (VTUAV) schedule milestones.

2768- VTUAV

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
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Initial Operating Capability, Full Rate Production Deployments and Operational Evaluation (OPEVAL) changed due to a Navy decision to prioritize warfighter requirements in Afghanistan and Urgent Operational Need (UON) locations ahead of OPEVAL. Additionally, the program will be procuring MQ-8C aircraft only between FY12 and FY18.
Radar RDC, Radar Integration Preliminary Design, and Specialty Payload Reviews changed due to Navy priorities and to align with fleet asset availability.
VTUAV EMD changed to align with the expected completion of development efforts and contract closeout.
Littoral Combat Ship (LCS) Integration Review changed to align with warfighter priorities and the LCS schedule.
Quick Reaction Assessments were changed due to Navy priority and MQ-8C program of record transition.
MUAS: Technical Interchange Meetings remain recurring meetings, but are no longer reported in the Vertical Take-off Unmanned Air Vehicle schedule.
TCS 3.0, 4.0 and 5.0 changed to reflect the revised software update schedule.

Technical: None

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
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COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
2478: *Tactical Control System*	164.576	9.353	9.066	8.381	-	8.381	8.513	8.636	8.887	8.997	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This program supports the Tactical Control System (TCS), a standards-based system, that provides interoperability and commonality for Command and Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance interfaces, and Command and Control of Naval Unmanned Aircraft Systems (UAS). TCS software operating on Ground Control Station hardware utilizing North Atlantic Treaty Organization (NATO) Standardization Agreements (STANAG)-4586 architecture communicating across a Tactical Common Data Link.

TCS provides a full range of scalable UAS capabilities from passive receipt of air vehicle and payload data to full air vehicle and payload command and control. TCS offers the war fighter a common core operating environment to simultaneously receive, process, and disseminate data from different UAS types for reconnaissance, surveillance, and combat assessment.

This program supports enhancements and updates to TCS in order to continue to meet supported air vehicle enhancements, incorporation of new technologies that will be used to enhance overall system performance, incorporate new payloads and payload capabilities (such as advanced sensors and weapons), incorporate multi-vehicle control, incorporate NATO STANAG-4586 and Command, Control, Communications, Computers and Intelligence enhancements, and alignment with OSD direction for UAS control segments.

TCS software will be incorporated into the MQ-8 Vertical Take-off and Landing Tactical Unmanned Air Vehicle (VTUAV) system and fields in conjunction with MQ-8. TCS software addresses MQ-8 requirements validated by the Joint Requirements Oversight Council in the VTUAV Capability Production Document (May 2007).

TCS maximizes the use of contractor and government off-the-shelf hardware and software whenever possible and incorporates software/hardware enhancements where appropriate to maintain growth potential and minimize hardware and operating system dependence. TCS software is interoperable, and is compliant with the OSD Command and Control, Communications, Intelligence Joint Technical Architecture, Distributed Common Ground System standards, Global Command and Control System (GCCS), and NATO standards. TCS hardware and software upgrades will support the Navy's Common Control System migration.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Title: TCS Development and Integration	8.592	8.321	7.727
Articles:	0	0	0
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Continue TCS integration with MQ-8 development. Continue new TCS capabilities to support requirements for Littoral Combat Ship integration. Continue TCS STANAG 4586 compliance. Continue TCS C4ISR interface integration testing for MQ-8 systems. Continue hardware and operating system independence initiatives. Start modifications for Unmanned Aerial System (UAS) weapons control, RADAR Special Operations Forces (SOF) payloads, Navy payload integration, and MQ-8 Endurance Upgrade. Initiate technology refresh, LINUX transition, and move to service oriented architecture. ***FY 2013 Plans:*** Continue Tactical Control System (TCS) integration with MQ-8 development and Rapid Deployment Capability efforts. Continue new TCS capabilities to support requirements for Littoral Combat Ship (LCS) Integration. Continue TCS NATO STANAG 4586 compliance. Continue TCS C4ISR interface integration & testing. Complete flight testing of hardware and operating system independence initiatives. Complete UAS weapons control and continue RADAR, SOF payloads, Navy payload integration, and MQ-8 Endurance Upgrade integration. Continue technology refresh, LINUX transition, and move to service oriented architecture. ***FY 2014 Plans:*** Continue TCS integration with MQ-8 development. Continue new TCS capabilities to support requirements for LCS efforts. Continue TCS STANAG 4586 compliance. Continue TCS C4ISR interface integration and testing for MQ-8 systems. Continue hardware and operating system independence initiatives. Continue RADAR, SOF payloads, Navy payload integration, MQ-8 Endurance Upgrade Integration, and commence Common Control Software Integration.			
Title: Technical and Engineering Services	0.761	0.745	0.654
Articles:	0	0	0
FY 2012 Accomplishments: Continue government engineering support, contractor support, program support, and travel for the TCS program. ***FY 2013 Plans:*** Continue government engineering support, contractor support, program support, and travel for the TCS program. ***FY 2014 Plans:*** Continue government engineering support, contractor support, program support, and travel for the TCS program.			
Accomplishments/Planned Programs Subtotals	9.353	9.066	8.381

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
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D. Acquisition Strategy

The TCS program is developing Government owned, non-proprietary software that supports VTUAV program. The TCS program continues to focus on Navy requirements and standards based on interoperability. Government-owned TCS software development toolkit is available to all UAS developers and manufacturers that allows a low-cost integration into the open architecture non-proprietary Tactical Control System (TCS) system. TCS will provide software modules for the Navy Common Control System (CCS) and the TCS tech refresh hardware will support Vertical Take-off and Landing Tactical Unmanned Air Vehicle migration to CCS software.

E. Performance Metrics

Successfully complete Coastal Battlefield Reconnaissance and Analysis Integration. Support MQ-8 Endurance Upgrade Rapid Deployment Capability integrated test. Successfully complete Littoral Combat Ship Integration. Complete Developmental and Operational Test. Successfully complete MQ-8 Weapons Rapid Deployment Capability Integration. Successfully complete payloads and RADAR Rapid Deployment Capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development 2	SS/CPIF	Raytheon:Falls Church,VA	0.000	8.077	Nov 2011	8.321	Nov 2012	7.727	Nov 2013	-		7.727	Continuing	Continuing	Continuing
Primary Software Development 1	C/CPAF	Raytheon:Falls Church,VA	137.616	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Award Fees	C/CPAF	Raytheon:Falls Church,VA	10.106	0.515	Jul 2012	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	147.722	8.592		8.321		7.727		0.000		7.727			

Remarks

Awarded 85.6% of award fees in past award fee periods.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test and Evaluation	WR	Various:Various	1.194	0.030	Nov 2011	0.026	Nov 2012	0.023	Nov 2013	-		0.023	Continuing	Continuing	Continuing
		Subtotal	1.194	0.030		0.026		0.023		0.000		0.023			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	Various:Various	2.683	0.213	Nov 2011	0.213	Nov 2012	0.187	Nov 2013	-		0.187	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various:Various	8.947	0.255	Nov 2011	0.257	Nov 2012	0.227	Nov 2013	-		0.227	Continuing	Continuing	Continuing
Program Management Support	Various	Various:Various	3.806	0.218	Nov 2011	0.218	Nov 2012	0.194	Nov 2013	-		0.194	Continuing	Continuing	Continuing
Travel	WR	NAVAIR:PAXRV, MD	0.224	0.045	Oct 2011	0.031	Nov 2012	0.023	Nov 2013	-		0.023	Continuing	Continuing	Continuing
		Subtotal	15.660	0.731		0.719		0.631		0.000		0.631			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks Travel Contract Type is TO.															

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	164.576	9.353		9.066		8.381		0.000		8.381			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2478: *Tactical Control System*

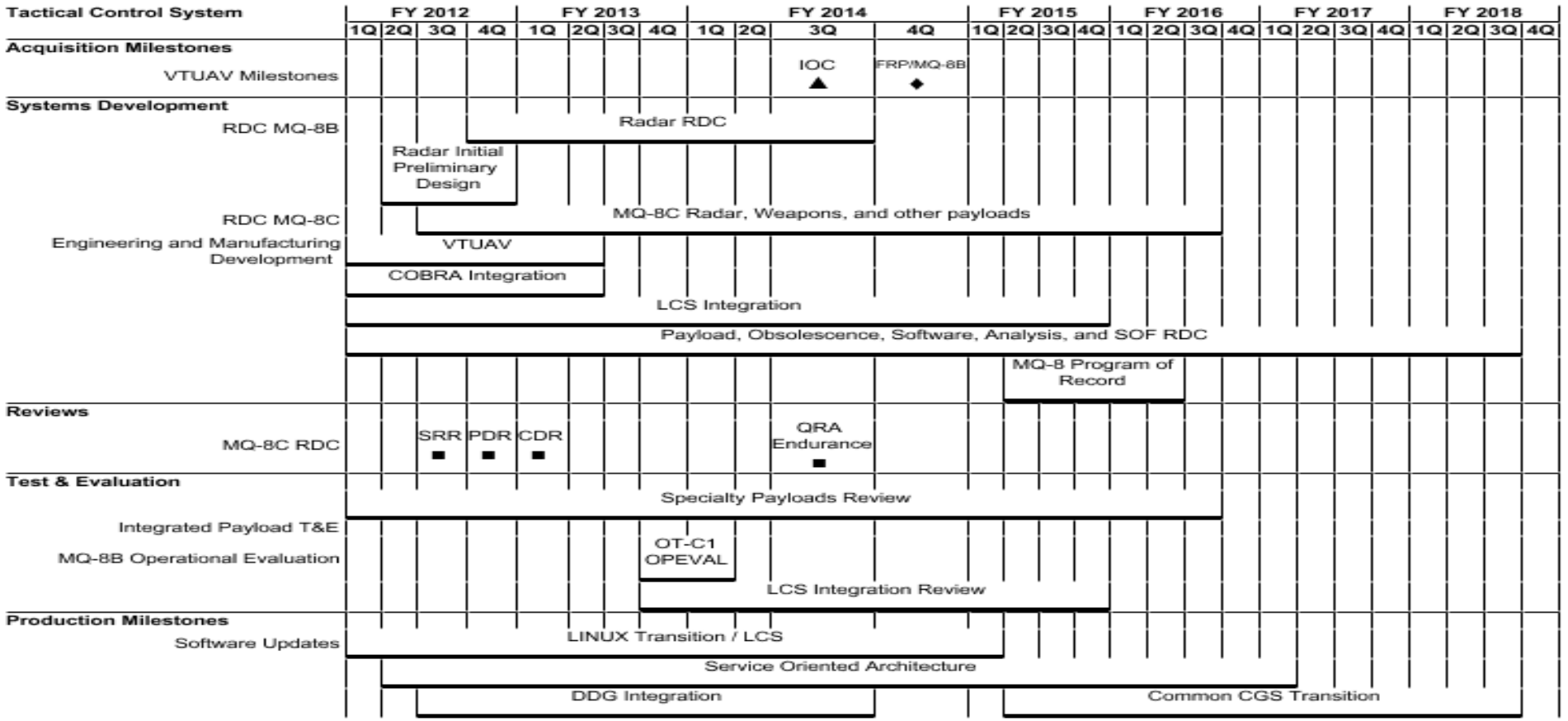

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305204N: *Tactical Unmanned Aer Vehicles*	PROJECT 2478: *Tactical Control System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Tactical Control System				
Acquisition Milestones: VTUAV Milestones: Initial Operational Capability (IOC)	3	2014	3	2014
Acquisition Milestones: VTUAV Milestones: Full Rate Production	4	2014	4	2014
Systems Development: RDC MQ-8B: Radar RDC	4	2012	3	2014
Systems Development: RDC MQ-8B: Radar Initial Preliminary Design	2	2012	4	2012
Systems Development: RDC MQ-8C: MQ-8C Radar, Weapons, and other payloads	3	2012	3	2016
Systems Development: Engineering and Manufacturing Development: VTUAV	1	2012	2	2013
Systems Development: Engineering and Manufacturing Development: Coastal Battlefield Reconnaissance and Analysis Integration	1	2012	2	2013
Systems Development: Engineering and Manufacturing Development: Littoral Combat Ship Integration	1	2012	4	2015
Systems Development: Engineering and Manufacturing Development: Payload, Obsolescence, Software, Analysis, and SOF RDC	1	2012	3	2018
Systems Development: Engineering and Manufacturing Development: MQ-8 Program of Record	2	2015	2	2016
Reviews: MQ-8C RDC: System Readiness Review	3	2012	3	2012
Reviews: MQ-8C RDC: Preliminary Design Review	4	2012	4	2012
Reviews: MQ-8C RDC: Critical Design Review	1	2013	1	2013
Reviews: MQ-8C RDC: Quick Reaction Assessment Endurance MQ-8C	3	2014	3	2014
Test & Evaluation: Specialty Payloads Review	1	2012	3	2016
Test & Evaluation: MQ-8B Operational Evaluation: MQ-8B OT-C1	4	2013	1	2014
Test & Evaluation: MQ-8B Operational Evaluation: Littoral Combat Ship Integration Review	4	2013	4	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Software Updates: TCS 3.0	1	2012	1	2015
Production Milestones: Software Updates: TCS 4.0	2	2012	1	2017
Production Milestones: Software Updates: TCS 5.0	2	2015	3	2018
Production Milestones: Software Updates: DDG Integration	3	2012	3	2014