| Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy | | | | | | | | | | Date: March 2014 | |

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*

R-1 Program Element (Number/Name)
PE 0305204N *I Tactical Unmanned Aer Vehicles*

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	173.929	6.956	8.381	8.505	-	8.505	8.624	8.873	8.977	9.148	Continuing	Continuing
2478: *Tactical Control System*	173.929	6.956	8.381	8.505	-	8.505	8.624	8.873	8.977	9.148	Continuing	Continuing

The FY 2015 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 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. 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 and dissemination of unmanned aerial vehicles sensor data.

B. Program Change Summary ($ in Millions)

	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	9.066	8.381	8.513	-	8.513
Current President's Budget	6.956	8.381	8.505	-	8.505
Total Adjustments	-2.110	-	-0.008	-	-0.008
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	-	-	-0.008	-	-0.008
• Congressional General Reductions Adjustments	-0.610	-	-	-	-
• Congressional Directed Reductions Adjustments	-1.500	-	-	-	-

Change Summary Explanation
Schedule:
Updated Tactical Control System schedule to coincide with MQ-8 Fire Scout schedule milestones.

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VTUAV related milestones Revised milestone terminology: Aligns with Navy decision to transition MQ-8 Endurance Upgrade, Radar, and Weapons capabilities into the MQ-8 Program of Record. Added schedule events for Anti Submarine Warfare/Mine Counter-Measure/Surface Warfare to support Littoral Combat Ship mission package integration, Quick Reaction Assessments, DDG-51 Test, and updated production and delivery schedules across FYDP. Technical: None		

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy											Date: March 2014	
Appropriation/Budget Activity 1319 / 7					**R-1 Program Element (Number/Name)** PE 0305204N / Tactical Unmanned Aer Vehicles					**Project (Number/Name)** 2478 / Tactical Control System		
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
2478: *Tactical Control System*	173.929	6.956	8.381	8.505	-	8.505	8.624	8.873	8.977	9.148	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 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 of Unmanned Aircraft Systems (UAS). TCS software, operating on Ground Control Station hardware, utilizes 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 intelligence, 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 is incorporated into the MQ-8 Fire Scout 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) and multiple Joint Emergent Operational Need/Urgent Operational Needs statements. TCS supported by a Operational Requirements Document (Feb 2000).

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 2013	FY 2014	FY 2015
Title: TCS Development and Integration	6.211	7.727	7.846
Articles:	-	-	-
FY 2013 Accomplishments:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue TCS integration with MQ-8 development and Rapid Deployment Capability efforts. Continue new TCS capabilities to support requirements for Littoral Combat Ship 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, Special Operation Forces (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 Tactical Control System (TCS) integration with MQ-8 development. Continue new TCS capabilities to support requirements for Littoral Combat Ship (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. *FY 2015 Plans:* Continue TCS integration and test 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 continue Common Control System integration and demonstrations. Continue technology refresh, LINUX transition, and move to service oriented architecture.			
Title: Technical and Engineering Services	0.745	0.654	0.659
Articles:	-	-	-
FY 2013 Accomplishments: 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. *FY 2015 Plans:* Continue government engineering support, contractor support, program support, and travel for the TCS program.			
Accomplishments/Planned Programs Subtotals	6.956	8.381	8.505

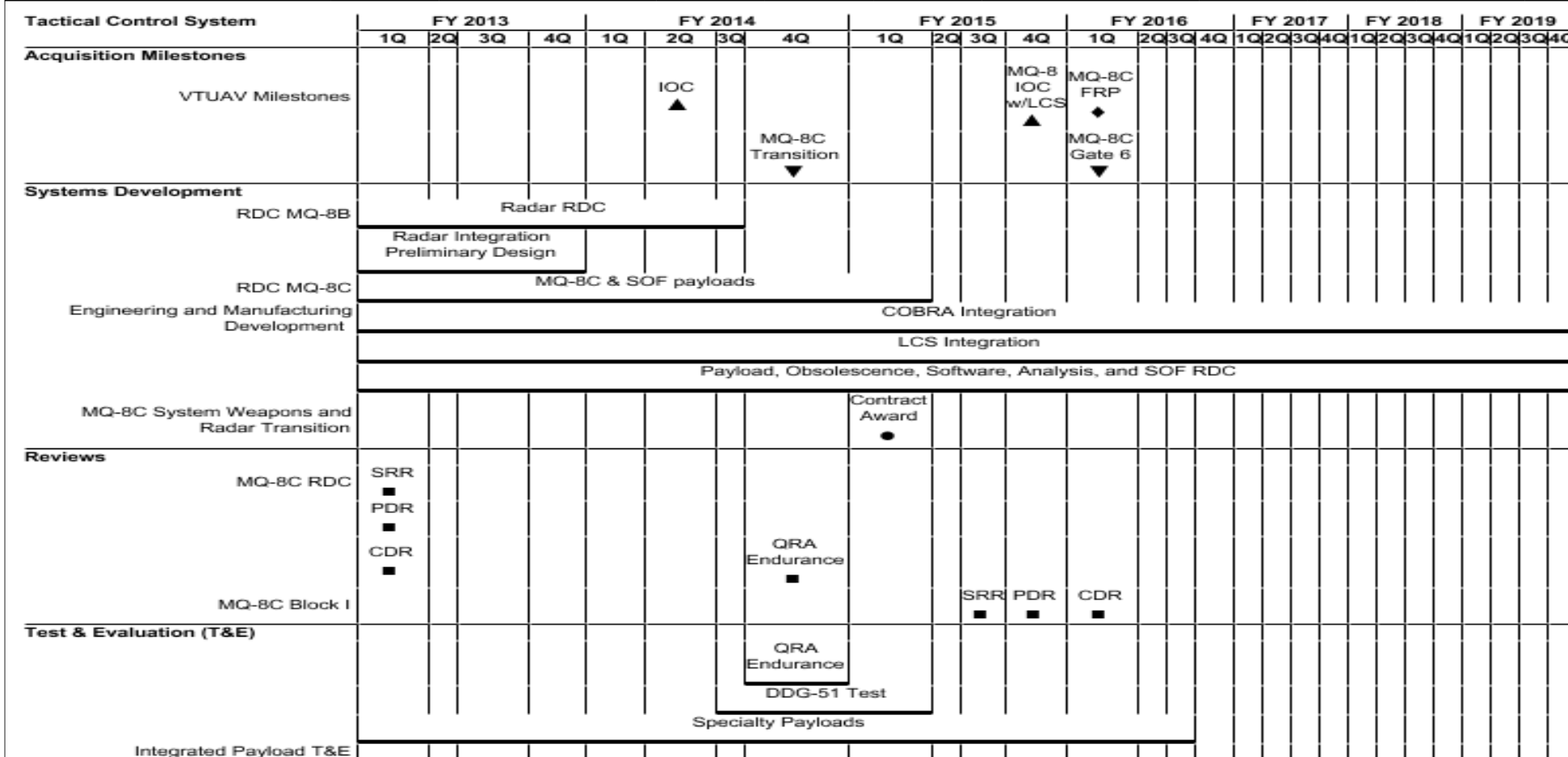C. Other Program Funding Summary ($ in Millions)

 N/A

Remarks

Exhibit R-2A, **RDT&E Project Justification:** PB 2015 Navy		**Date:** March 2014
Appropriation/Budget Activity 1319 **/** 7	**R-1 Program Element (Number/Name)** PE 0305204N **/** *Tactical Unmanned Aer Vehicles*	**Project (Number/Name)** 2478 **/** *Tactical Control System*

D. Acquisition Strategy

The Tactical Control System (TCS) program is Government owned, non-proprietary software that currently supports the Fire Scout 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 TCS system. TCS will provide software modules to the Navy Common Control System (CCS) and the TCS tech refresh hardware will support migration to CCS software.

E. Performance Metrics

Successfully complete the Coastal Battlefield Reconnaissance and Analysis Navy payload integration. Support MQ-8C Endurance Upgrade, Radar, and Weapons Rapid Deployment Capabilities and transition of those capabilities into the MQ-8 Program of Record. Successfully complete Littoral Combat Ship Integration. Complete Developmental and Operational Test. Successfully complete MQ-8 Weapons Rapid Deployment Capability Integration.

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Navy		**Date:** March 2014
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305204N / *Tactical Unmanned Aer Vehicles*	**Project (Number/Name)** 2478 / *Tactical Control System*

Tactical Control System

Schedule chart spanning FY 2013 through FY 2019 (by quarter).

Acquisition Milestones
- VTUAV Milestones: IOC (FY2014 2Q ▲); MQ-8C Transition (FY2014 4Q ▼); MQ-8 IOC w/LCS (FY2016 4Q ▲); MQ-8C FRP (FY2016 1Q ♦); MQ-8C Gate 6 (FY2016 1Q ▼)

Systems Development
- RDC MQ-8B: Radar RDC; Radar Integration Preliminary Design
- RDC MQ-8C: MQ-8C & SOF payloads
- Engineering and Manufacturing Development: COBRA Integration; LCS Integration; Payload, Obsolescence, Software, Analysis, and SOF RDC
- MQ-8C System Weapons and Radar Transition: Contract Award (FY2015 1Q ●)

Reviews
- MQ-8C RDC: SRR ■; PDR ■; CDR ■ (FY2013 1Q); QRA Endurance ■ (FY2014 2Q)
- MQ-8C Block I: SRR ■ (FY2015 3Q); PDR ■ (FY2015 4Q); CDR ■ (FY2016 1Q)

Test & Evaluation (T&E)
- QRA Endurance; DDG-51 Test; Specialty Payloads
- Integrated Payload T&E

Exhibit R-4, **RDT&E Schedule Profile:** PB 2015 Navy		**Date:** March 2014
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