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 0204571N *I Consolidated Trng Sys 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	296.110	38.446	37.922	39.087	-	39.087	41.952	42.701	20.330	20.767	Continuing	Continuing
0604: *Training Range & Instr Dev*	138.426	3.460	2.729	3.502	-	3.502	3.575	3.606	3.679	3.755	Continuing	Continuing
1427: *Surface Tactical Team Trainer (STTT)*	70.008	10.849	16.768	9.954	-	9.954	13.893	11.764	10.631	10.851	Continuing	Continuing
2124: *Air Warfare Training*	29.263	10.395	1.262	1.611	-	1.611	1.654	1.671	1.707	1.741	Continuing	Continuing
3093: *TACTS/LATR Replacement*	58.413	4.250	10.349	19.252	-	19.252	16.070	24.478	4.313	4.420	Continuing	Continuing
3356: *High Fidelity Surface Trainers*	0.000	9.492	6.814	4.768	-	4.768	6.760	1.182	-	-	-	29.016
Program MDAP/MAIS Code: 223												

A. Mission Description and Budget Item Justification

A. MISSION DESCRIPTION:

0604 - This project develops specialized instrumentations for fleet readiness training while minimizing life cycle costs. Tasks include development of the following: Large Area Tracking Range improvements, technology improvements for fixed and portable Anti-Submarine Warfare training ranges, and Tactical Training Range (TTR) infrastructure improvements to include: the Joint Display Subsystem, Radar Acquisition Display Subsystem, Electronic Warfare server, Link 16 interface, TTR rotary platform technology improvements and the Radiant Mercury Cross Domain Solution.

1427 - Surface Tactical Team Trainer (STTT) develops modifications during sustainment of Battle Force Tactical Training (BFTT) system. This is required to maintain capabilities and interfaces to provide realistic combat system coordinated team, unit and Fleet Synthetic Training (FST) collective Group/Force level training events. In addition, BFTT supports the embedded trainer "family of systems" approach for the development of a Total Ship Training Capability (TSTC). Specific improvements include improved integration with the Navy Continuous Training Environment (NCTE) and development of a High Level Architecture (HLA) capable, integrated shipboard network to meet increasing Commander Naval Surface Forces (CNSF) and United States Fleet Forces Command (USFFC) FST requirements. The need for transforming training is documented within the DoD Training Transformation Plan, the Chief of Naval Operations Fleet Response Plan and Commander United States Fleet Forces Command Fleet Readiness Training Plan.

2124 - Air Warfare Training Development (AWTD) provides for risk mitigation and next generation platform, Unmanned Aerial Systems (UAS), Live Virtual Constructive (LVC) and associated visualization component development for distributed mission training, and for stand-alone and small footprint deployable devices. Support the Navy Aviation Simulation Master Plan (NASMP) upgrade efforts and Type/Model/Series programs with advanced visual system display configurations requirements. Provide for Open Architecture (OA), and common systems interface applications. Assess trainee cognitive requirements and the development and incorporation of

next generation LVC, UAS constructive and associated visualization component technologies. Additionally, AWTD provides for advanced virtual component fidelity improvements for LVC capability which includes the "Mobility" Part-Task Trainers and the Multiplex Data Bus Controller Translator Transmitter enabling technologies. LVC technologies will facilitate advanced, cost effective weapons and tactics training and emerging capability requirements in the Air-Sea Battle Space and Naval Integrated Fire Control-Counter Air capabilities development.

3093 - The Tactical Combat Training System (TCTS) will provide the Navy a replacement for the Tactical Aircrew Combat Training System (TACTS) and Large Area Tracking Range systems. TCTS will also provide fleet deployable training for at-sea training and tactics development. By providing a rangeless capability, the system will greatly increase the area where live instrumented training can be conducted. Fielding of a pod system is complete at TACTS sites. The program incorporates an evolutionary development (incremental) towards an encrypted system capable of supporting a broad spectrum of naval platforms through weapons simulations, participant sensor stimulation, open architecture and an encrypted/long range secure data link.

3356- Funds FCA, high fidelity Aegis Integrated Air and Missile Defense (IAMD) individual and team trainers for all Advanced Capability Build (ACB) and below Aegis baselines. This line also provides funds for development of a CIWS 1B Baseline 2 Trainer upgrade.

JUSTIFICATON FOR BUDGET ACTIVITY:
This program is funded under Operational Systems Development because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate funding in the current or subsequent fiscal year.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	39.124	39.922	47.715	-	47.715
Current President's Budget	38.446	37.922	39.087	-	39.087
Total Adjustments	-0.678	-2.000	-8.628	-	-8.628
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.679	-			
• Rate/Misc Adjustments	0.001	-	-8.628	-	-8.628

Change Summary Explanation

The FY 2016 funding request was reduced by $8.3 million to account for the availability of prior year execution balances.

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 0204571N *I Consolidated Trng Sys Dev*

0604: R-4/R-4a reflects the following program changes: Ocean Systems: Established new accomplishment with schedule due to updated fleet requirements for future ocean range upgrades.

2124: R-4/R-4A reflects the following program changes: Due to a change in fleet priorites the following was updated.
Human/Instructional Systems Integration
Systems Development: All efforts consolidated under "Common Instr. System/Semi-Automated Forces and Unmanned- Aerial Systems Interface Selection and Training Technologies Technology Development" 1st Qtr FY2014 to 4th Qtr FY2020.
Test and Evaluation:
Added - Automated Performance Assessment and After Action Review System 4th Qtr FY2015; Tactical Aircraft Semi-Automated Forces 4th Qtr FY2015.
Production Milestones:
Added - TACAIR Instr. Sys Post Mission Assesment Tacitical Training 4th Qtr FY2014; APAARS 1st Article 3rd Qtr FY2015; Unmanned Aerial Systems Instr. Sys Tier 1/2 4th Qtr FY2017; Live Virtual Constructive (LVC) Instr. Sys Component Technologies 4th Qtr FY2016
Renamed - P-3C Mission Training Station (MTS)/PMATT 4th Qtr FY2014 to P-3C Instr. Sys PMATT Inc I; P-8A MTS/PMATT 4th Qtr FY2015 to P-8A Instr. Sys PMATT Inc II; UAS MTS Tier One/Two 4th Qtr FY2018 to UAS Instr. Sys Tier 1/2; UAS MTS Tier I/II 4th Qtr FY2019 to UAS Instr. Sys Tier 1/2.
Deleted: Rotary Wing Hypoxia/Spatial Disorientation (SD) 4th Qtr FY2015; LVC MTS 4th Qtr FY2017
Sensors and Environment
Systems Development:
Renamed - Atmospherics/Weather 1st Qtr FY2013 to 4th Qtr FY2014 to Atmospherics/Illusions(SD) 1st Qtr FY2014 to 4th Qtr 2015.
Added: Spatial Disorientation Technologies (Fixed/Rotary) 1st Qtr FY2014 to 4th Qtr FY2015.
Deleted: Communications (COMMS)/Electonic Warfare (EW)/SAF/Break-Link 1st Qtr FY2013 to 4th Qtr FY2019
Test and Evaluation:
Added - Spatial Disorientation v/s Upgrade 4th Qtr FY2015
Production Milestones:
Added - Rotary Wing Hypoxia/SD 4th Qtr FY2015; Fused Sensors UAS/Tier 2 4th Qtr FY2014; Fused Sensors UAS/Tier 1 4th Qtr FY2019
Deleted - Real-Time Atmospherics w/Electro Optics 4th Qtr 2014; UAS/LVC 4th Qtr FY2016
LVC and Visuals
Systems Development:
Changed - Live 1st Qtr FY2013 to 4th Qtr FY2016 to 1st Qtr FY2014 to 4th Qtr 2017
Added - Naval Integrated Fire Control-Counter Air (NIFC-CA) 1st Qtr FY2014 to 4th Qtr FY2017
Renamed - Integrated LVC 1st Qtr FY2014 to 4th QTR 2018 to Integrated LVC Components
Test and Evaluation:
Added - NIFC-CA, LVC, Fallon, Phase I/II 4th Qtr 2016; NIFC-CA, LVC, Fallon, Phase III 4th Qtr FY2017
Production Milestones:
Changed - Symbology Set 4th Qtr FY2014 to 4th Qtr 2015; LVC Datalink 4th Qtr FY2016 to 4th Qtr FY2017; Mobility Part Task Trainer 4th Qtr FY2015 to 4th Qtr FY2016

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 0204571N *I Consolidated Trng Sys Dev*

3093: R-4/R-4A reflects the following program changes: Due to a change in contract strategy from sole source to competitive (Milestone Decision Authority directed), the program schedule shifted due to the added time required for a competitive selection: Tactical Aircrew Combat Training System/Large Area Tracking Range (TACTS/LATR) Replacement-Acquisition Milestone Encryption MS B from 4th Qtr FY2014 to 2nd Qtr FY2016; TACTS/LATR Replacement-Acquisition Milestone Encryption MS C from 3rd Qtr FY2017 to 3rd Qtr FY2019; TACTS/LATR Replacement-Production Milestone Increment 2 Encrypted Datalink Capability from 4th Qtr FY2017 to 3rd Qtr FY2019.

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 0604 / *Training Range & Instr 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
0604: *Training Range & Instr Dev*	138.426	3.460	2.729	3.502	-	3.502	3.575	3.606	3.679	3.755	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops specialized instrumentations for fleet readiness training while minimizing life cycle costs. Tasks include development of the following: Large Area Tracking Range (LATR) improvements, technology improvements for fixed and portable Anti-Submarine Warfare (ASW) training ranges, and Tactical Training Range (TTR) infrastructure improvements to include: the Joint Display Subsystem (JDS), Radar Acquisition Display Subsystem (RADS), Electronic Warfare (EW) server, Link 16 interface, TTR rotary platform technology improvements and the Radiant Mercury (RM) Cross Domain Solution (CDS).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: LATR	2.051	1.876	1.250	-	1.250
Articles:	-	-	-	-	-
Description: Design, integrate and test modules to eliminate obsolete components in the LATR Pod. Design, integrate and test LATR software baseline upgrades. Design, integrate and test Participant Instrumentation Packages (PIP) modules to address obsolescence, high failure components and to improve operability and performance. Conduct and complete installation of the Ground System Rehosts. Conduct and complete security testing and assessment for LATR system certification and accreditation for Ground System Rehosts. Develop, test and integrate software and hardware modifications to system test sets. Develop, test and integrate LATR data translators. Conduct studies to identify sub-projects required through FY22. Complete ground system and PIP refresh sub-projects, in conjuction with, semi-annual system block upgrades. Conduct LATR Operational Security (OPSEC) Posture Improvements Sub-Project and Shipboard and Rotary Wing Technology Wing Upgrade (LSRTU).					
FY 2014 Accomplishments: Develop and test LATR ground software version 5.8.0. Continue to develop LATR Shipboard and LSRTU. Complete LATR OPSEC posture improvements.					
FY 2015 Plans: Develop and test LATR ground software version 5.9.0. Continue to develop LATR Shipboard and LSRTU.					
FY 2016 Base 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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Develop and test Large Area Tracking Range (LATR) ground software version 6.0.0. Continue to develop LATR Shipboard and Rotary Wing Technology Upgrade (LSRTU). ***FY 2016 OCO Plans:*** N/A					
Title: TENA	0.800	-	-	-	-
Articles:	-	-	-	-	-
Description: Develop and test Tactical Training Ranges (TTR) Object Model (OM) for use with the Office of the Secretary of Defense (OSD) Test & Training Enabling Architecture (TENA) Software Development Agency (SDA) TENA Middleware versions 5.0-11.0. Develop TTR TENA Gateway for use with the TTR Electronic Warfare (EW) server and Joint Display System (JDS) and Tactical Combat Training System instrumentation set. Develop TTR TENA Monitoring Tool for diagnostic use by TTR personnel and TTR System Support Activities. Develop and test TTR TENA product upgrades to be compatible with TENA SDA Middleware. Host TENA on the TTR EW server and JDS. ***FY 2014 Accomplishments:*** Develop Graphic User Interface for TTR TENA Monitoring Tool as requested by Fleet users. Develop and test TTR TENA 9.0 product upgrades to be compatible with evolving TENA SDA Middleware. Develop interfaces with evolving Joint TENA training events. ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A					
Title: TTR	0.609	0.853	2.002	-	2.002
Articles:	-	-	-	-	-
Description: Develop and test upgrades to the JDS, Radar Acquisition Display Subsystem (RADS), and EW server. Develop and test upgrades to the Link-16 Interface, JDS, RADS, and EW server. ***FY 2014 Accomplishments:*** Develop and test 2014.1 & 2014.2 upgrades to the JDS, RADS, and EW server.					

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Complete Tactical Training Ranges rotary platform tracking set. ***FY 2015 Plans:*** Develop and test 2015.1 & 2015.2 upgrades to the Joint Display System (JDS), Radar Acquisition Display Subsystem (RADS)& Electronis Warfare (EW) Server. ***FY 2016 Base Plans:*** Develop and test 2016.1 & 2016.2 upgrades to the JDS, RADS & EW Server. With the exception of FY 15, TTR fields two software block upgrades per year to allow the Joint Display System (JDS), Electronic Warfare (EW) Server, and Radar Acquisition and Display Subsystem (RADS) to remain in concert with evolving threat and tactical training requirements. ***FY 2016 OCO Plans:*** N/A					
Title: Ocean Systems	-	-	0.250	-	0.250
Articles:	-	-	-	-	-
Description: Research, develop, and test technology improvements for fixed and portable Anti-Submarine Warfare (ASW) training ranges. ***FY 2014 Accomplishments:*** N/A ***FY 2015 Plans:*** N/A ***FY 2016 Base Plans:*** Conduct analysis of advanced technical solutions for ASW range capability at Pacific Missle Range Facility (PMRF), Barking Sands, Hawaii and future ocean range locations. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	3.460	2.729	3.502	-	3.502

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• OPN/4204: *Weapons Range Support Equipment (WRSE)/LSRTU*	-	-	3.133	-	3.133	0.364	-	-	-	-	3.497

Remarks

D. Acquisition Strategy

The Training Range and Instrumentation Development (TRID) program is a non-ACAT program. The integrated program teams that develop new TRID capabilities include government and contractor engineering personnel.

E. Performance Metrics

Metric/Description:
Naval Air Warfare Center-Aircraft Division (NAWC-AD): # of Large Area Tracking Range (LATR) system product improvements and new capabilities. Successful application of system engineering processes. Design and development of improvements. Site acceptance of product improvements with no Priority 1 or 2 problem reports. Completion of 1 upgrade per year.

Jacobs Eng: # of LATR system product improvements and new capabilities. Successful design, development and testing of product improvements and new capabilities. Site acceptance of product improvements with no Priority 1 or 2 problem reports.

NAWC-Weapons Division (WD): # of Tactical Training range (TTR) upgrades per year. Successful application of system engineering processes. Design and development of improvements. Site acceptance of product improvements with no Priority 1 or 2 problem reports. Completion of 2 upgrade per year.

Jacobs Eng: # of TTR system product improvements and new capabilities. Successful design, development, and testing of product improvements and new capabilities. Site acceptance of product improvements with no Priority 1 or 2 problem reports.

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 0604 / *Training Range & Instr Dev*	

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
Hardware Development	C/CPFF	JACOBS ENG : RIDGECREST, CA	9.417	0.744	Nov 2013	0.397	Nov 2014	1.238	Jan 2016	-		1.238	-	11.796	11.796
Software Development	C/CPFF	JACOBS ENG : RIDGECREST, CA	3.354	1.291	Nov 2013	0.688	Nov 2014	0.375	Jan 2016	-		0.375	-	5.708	5.708
Hardware Development	WR	NSWC : CORONA, CA	0.000	-		0.050	Nov 2014	-		-		-	Continuing	Continuing	Continuing
Hardware Development	WR	NUWC : NEWPORT, RI	0.000	-		-		0.250	Nov 2015	-		0.250	Continuing	Continuing	Continuing
Software Development	WR	NAWC-AD : PAX RIVER, MD	6.559	0.500	Nov 2013	1.079	Nov 2014	0.739	Nov 2015	-		0.739	Continuing	Continuing	Continuing
Software Development	WR	NAWC-WD : POINT MUGU, CA	5.510	0.200	Nov 2013	0.165	Nov 2014	0.050	Nov 2015	-		0.050	Continuing	Continuing	Continuing
Software Development	WR	NRL : WASHINGTON, DC	0.200	-		0.100	Nov 2014	0.100	Jan 2016	-		0.100	Continuing	Continuing	Continuing
Prior Year Prod Dev No Longer Funded in the FYDP	Various	Various : Various	93.905	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	118.945	2.735		2.479		2.752		-		2.752	-	-	-

Remarks

Jacobs Engineering formally Tybrin Corporation.

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
Systems Engineering	WR	NAWC-AD : PAX RIVER, MD	0.163	0.300	Nov 2013	-		0.300	Nov 2015	-		0.300	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWC-WD : CHINA LAKE, CA	0.085	0.100	Nov 2013	-		0.100	Nov 2015	-		0.100	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : CORONA, CA	0.345	0.075	Nov 2013	-		0.100	Nov 2015	-		0.100	Continuing	Continuing	Continuing

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 0604 / *Training Range & Instr Dev*	

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 No Longer Funded in the FYDP	Various	Various : Various	10.576	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	11.169	0.475		-		0.500		-		0.500	-	-	-

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
Prior Year T&E No Longer Funded in the FYDP	Various	Various : Various	5.299	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	5.299	-		-		-		-		-	-	-	-

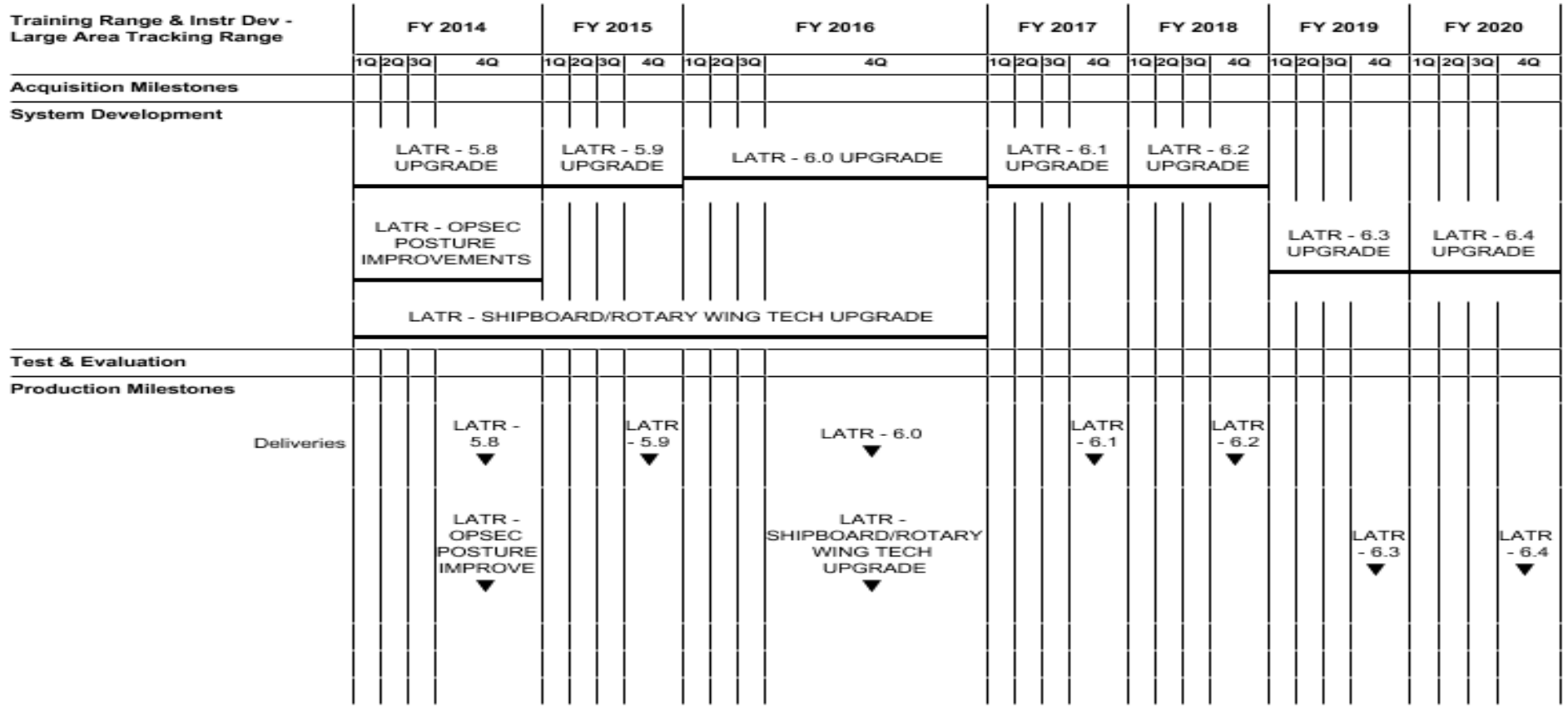
Management Services ($ in Millions)

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
Prog Mngt Sup	WR	NAWC-TSD : ORLANDO, FL	3.013	0.250	Nov 2013	0.250	Nov 2014	0.250	Nov 2015	-		0.250	Continuing	Continuing	Continuing
		Subtotal	3.013	0.250		0.250		0.250		-		0.250	-	-	-

	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
Project Cost Totals	138.426	3.460		2.729		3.502		-		3.502	-	-	-

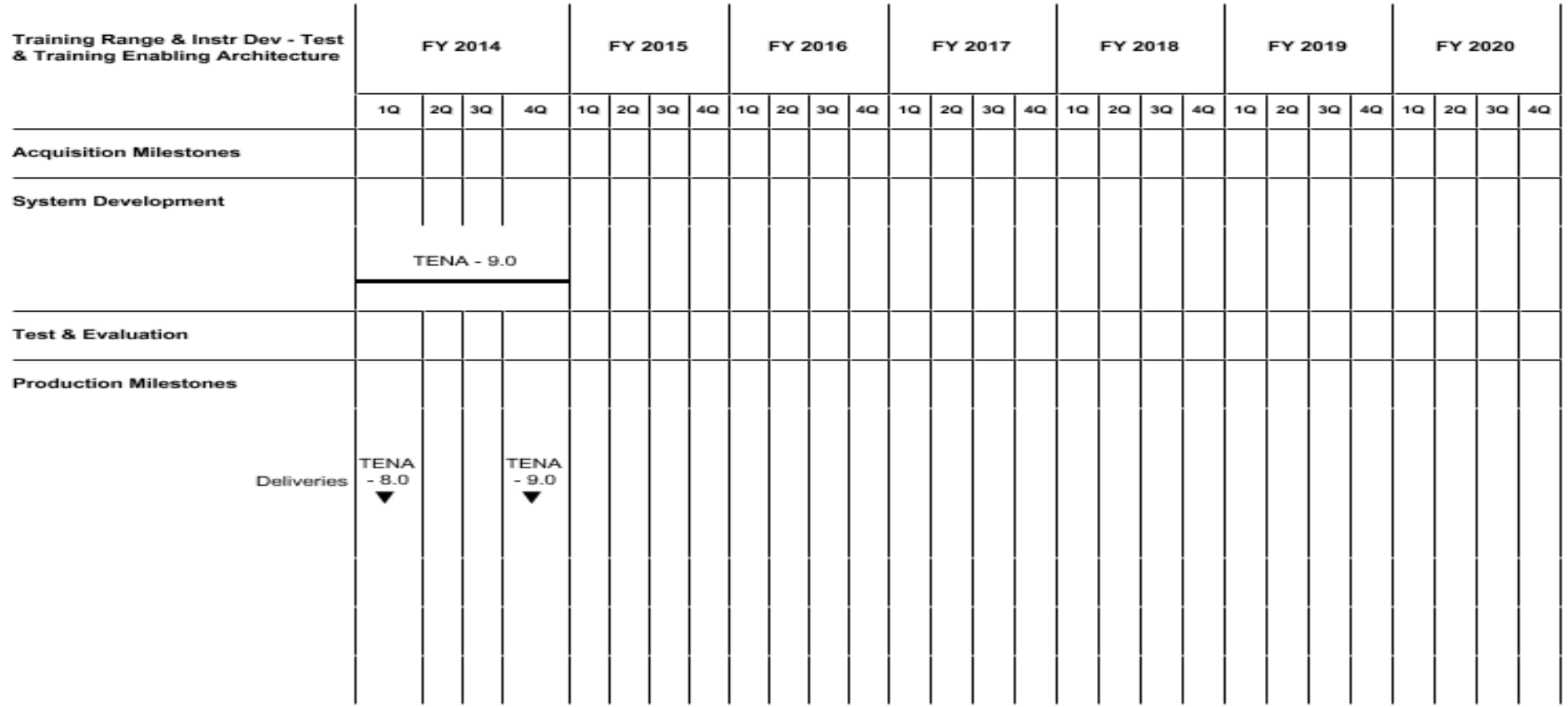
Remarks

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*



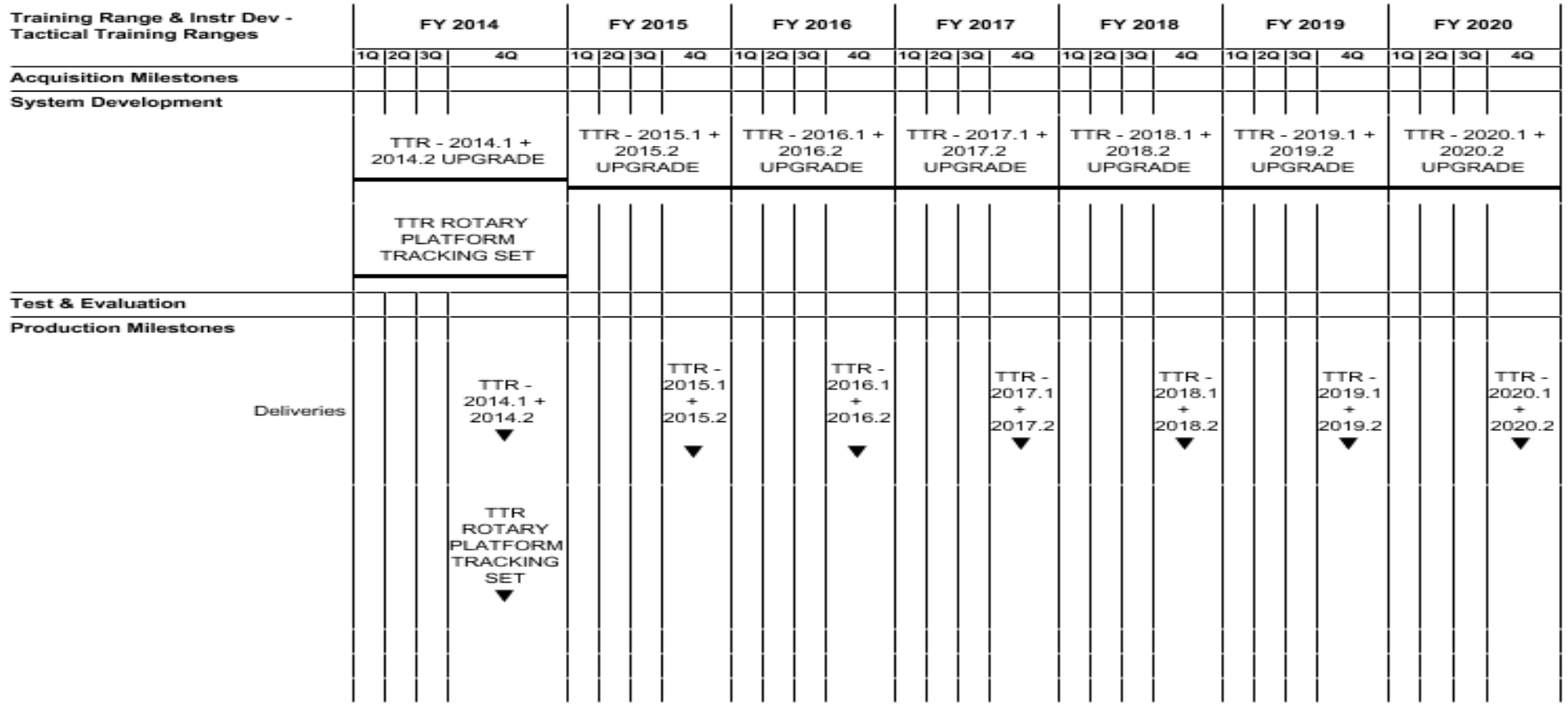
2016PB - 0204571N - 0604

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*



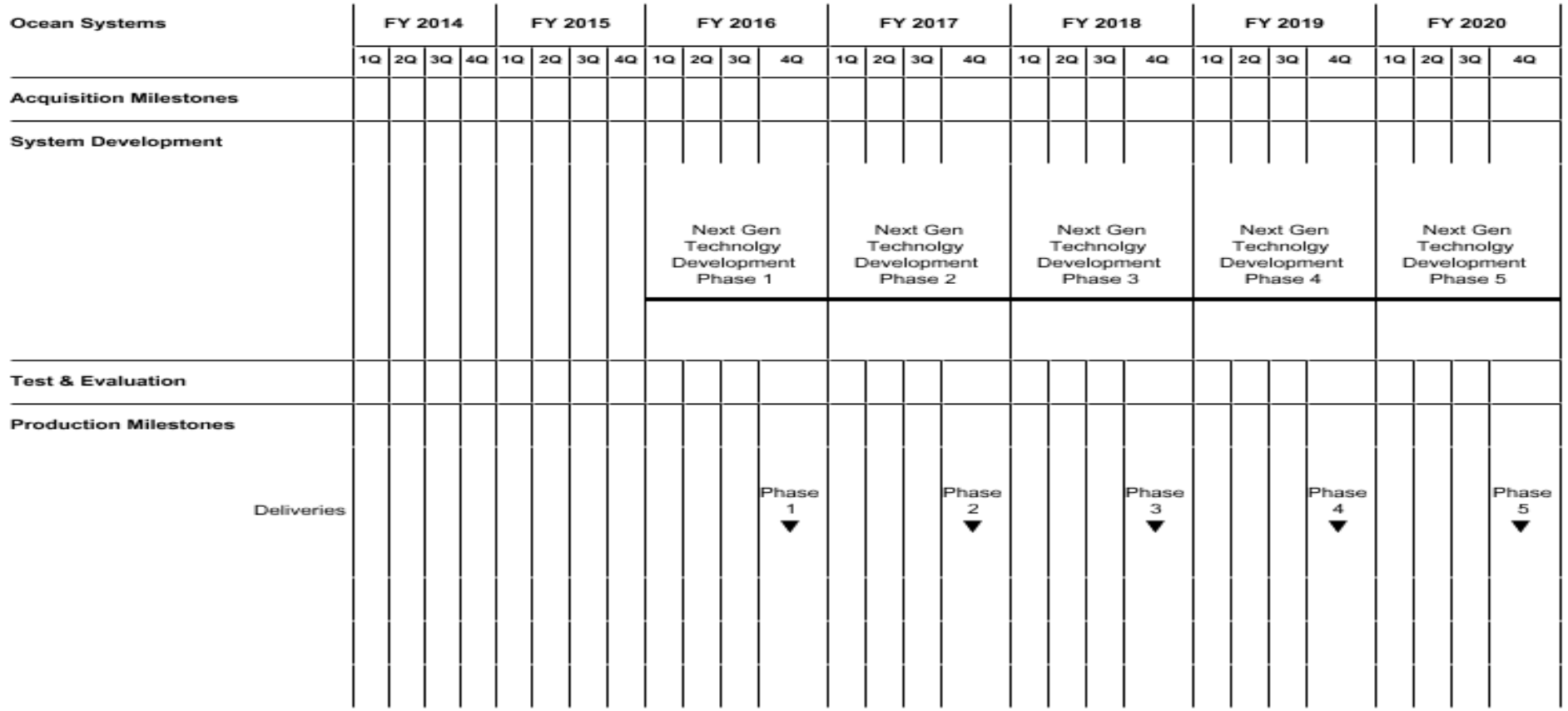
2016PB - 0204571N - 0604

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*



2016PB - 0204571N - 0604

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*



2016PB - 0204571N - 0604

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Training Range & Instr Dev - Large Area Tracking Range				
System Development: LATR - 5.8 UPGRADE	1	2014	4	2014
System Development: LATR - 5.9 UPGRADE	1	2015	4	2015
System Development: LATR - 6.0 UPGRADE	1	2016	4	2016
System Development: LATR - 6.1 UPGRADE	1	2017	4	2017
System Development: LATR - 6.2 UPGRADE	1	2018	4	2018
System Development: LATR - OPSEC POSTURE IMPROVEMENTS	1	2014	4	2014
System Development: LATR - 6.3 UPGRADE	1	2019	4	2019
System Development: LATR - 6.4 UPGRADE	1	2020	4	2020
System Development: LATR - SHIPBOARD/ROTARY WING TECH UPGRADE	1	2014	4	2016
Production Milestones: Deliveries: LATR - 5.8 UPGRADE	4	2014	4	2014
Production Milestones: Deliveries: LATR - 5.9 UPGRADE	4	2015	4	2015
Production Milestones: Deliveries: LATR - 6.0 UPGRADE	4	2016	4	2016
Production Milestones: Deliveries: LATR - 6.1 UPGRADE	4	2017	4	2017
Production Milestones: Deliveries: LATR - 6.2 UPGRADE	4	2018	4	2018
Production Milestones: Deliveries: LATR - OPSEC POSTURE IMPROVEMENTS	4	2014	4	2014
Production Milestones: Deliveries: LATR - 6.3 UPGRADE	4	2019	4	2019
Production Milestones: Deliveries: LATR - 6.4 UPGRADE	4	2020	4	2020
Production Milestones: Deliveries: LATR - SHIPBOARD/ROTARY WING TECH UPGRADE	4	2016	4	2016
Training Range & Instr Dev - Test & Training Enabling Architecture				
System Development: TENA - 9.0	1	2014	4	2014
Production Milestones: Deliveries: TENA - 8.0	1	2014	1	2014

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Deliveries: TENA - 9.0	4	2014	4	2014
Training Range & Instr Dev - Tactical Training Ranges				
System Development: TTR - 2014.1 + 2014.2 UPGRADE	1	2014	4	2014
System Development: TTR - 2015.1 + 2015.2 UPGRADE	1	2015	4	2015
System Development: TTR - 2016.1 + 2016.2 UPGRADE	1	2016	4	2016
System Development: TTR - 2017.1 + 2017.2 UPGRADE	1	2017	4	2017
System Development: TTR - 2018.1 + 2018.2 UPGRADE	1	2018	4	2018
System Development: TTR - 2019.1 + 2019.2 UPGRADE	1	2019	4	2019
System Development: TTR - 2020.1 + 2020.2 UPGRADE	1	2020	4	2020
System Development: TTR ROTARY PLATFORM TRACKING SET	1	2014	4	2014
Production Milestones: Deliveries: TTR - 2014.1 + 2014.2 UPGRADE	4	2014	4	2014
Production Milestones: Deliveries: TTR - 2015.1 + 2015.2 UPGRADE	4	2015	4	2015
Production Milestones: Deliveries: TTR - 2016.1 + 2016.2 UPGRADE	4	2016	4	2016
Production Milestones: Deliveries: TTR - 2017.1 + 2017.2 UPGRADE	4	2017	4	2017
Production Milestones: Deliveries: TTR - 2018.1 + 2018.2 UPGRADE	4	2018	4	2018
Production Milestones: Deliveries: TTR - 2019.1 + 2019.2 UPGRADE	4	2019	4	2019
Production Milestones: Deliveries: TTR - 2020.1 + 2020.2 UPGRADE	4	2020	4	2020
Production Milestones: Deliveries: TTR ROTARY PLATFORM TRACKING SET	4	2014	4	2014
Ocean Systems				
System Development: Next Gen Technolgy Development Phase 1	1	2016	4	2016
System Development: Next Gen Technolgy Development Phase 2	1	2017	4	2017
System Development: Next Gen Technolgy Development Phase 3	1	2018	4	2018
System Development: Next Gen Technolgy Development Phase 4	1	2019	4	2019
System Development: Next Gen Technolgy Development Phase 5	1	2020	4	2020
Production Milestones: Deliveries: Phase 1	4	2016	4	2016
Production Milestones: Deliveries: Phase 2	4	2017	4	2017

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Deliveries: Phase 3	4	2018	4	2018
Production Milestones: Deliveries: Phase 4	4	2019	4	2019
Production Milestones: Deliveries: Phase 5	4	2020	4	2020

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 1427 / *Surface Tactical Team Trainer (STTT)*	

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
1427: *Surface Tactical Team Trainer (STTT)*	70.008	10.849	16.768	9.954	-	9.954	13.893	11.764	10.631	10.851	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Surface Tactical Team Trainer project/BFTT Program provides enhancements and upgrades to the Total Ship Training Capability (TSTC) training components to support AEGIS and SSDS needs for increased training capability and functionality. The BFTT component develops new capabilities and integrates training capabilities developed by the AEGIS and SSDS TSTC Training Improvement Programs into a consolidated integrated training system for use on AEGIS and SSDS. TSTC enhancements developed address current and future training requirements by implementing new functionality and by integrating capabilities being developed by both the AEGIS and SSDS Training Improvement Programs into a consolidated training system. TSTC is developments and upgrades include the evolution to an open distributed architecture with maximum commonality across ship classes, integrating existing training systems, or leveraging capabilities developed by other programs.

TSTC provides realistic joint warfare training across the spectrum of armed conflict, realistic unit level team training in all warfare areas (e.g. NIFC-CA and BMD missions to support IAMD). TSTC provides ships' Commanding Officers and Battle Group/Battle Force Commanders with the ability to conduct coordinated realistic, high stress, combat system level team training as an integral part of the Afloat Training Organization, the Tactical Training Groups and C2F/C3F FSTs.

TSTC integrated on SSDS provides the capability to complete system and operational level testing of the combat system.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Surface Tactical Team Trainer (STTT)	10.849	16.768	9.954	-	9.954
Articles:	-	-	-	-	-
FY 2014 Accomplishments: Continue developing BFTT Build 5.0 to support deployment to Aegis Baseline 9 and SSDS CVN-78 to include modifications to support Cooperative Engagement Capability (CEC) Enhanced Training (CET) upgrades, Simulated Own-Ship Missile generation and control, database decouple, simulated weapon profile updates and integrated editor, and various Human Machine Interface (HMI) improvements. Initiated systems engineering efforts to develop updates to BFTT program in supporting integration of TSTC capabilities for improved Integrated Air and Missile Defense (IAMD), Anti-Submarine Warfare (ASW), and Surface Warfare (SUW) training on AEGIS ACB16/BL9.C2 and SSDS MK 2. These systems engineering efforts included developing BFTT requirements for integrating MH-60R constructive simulator, Identification Friend or Foe (IFF) simulator, Cooperative Engagement Capability (CEC) trainer updates, Dual Band Radar simulator,					

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Electronic Warfare (EW), Anti-Submarine Warfare (ASW) trainer and Carrier Tactical Support Center (CV-TSC) trainer upgrades with AEGIS ACB 16/BL9.C2 and SSDS MK2 Combat System. Initiated engineering development for the Cooperative Engagement Capability (CEC) Interim Trainer (CIT) to support near-term fleet training needs. Began requirements development for the AEGIS Training Domain (ATD) components of TSTC to support Aegis Baseline 9.C2 training and SSDS Integrated Combat System Training enhancements. This effort is being accomplished in conjunction with AEGIS TSTC Training Improvement Program and the SSDS TSTC Training Improvement Programs to ensure maximum leveraging of capabilities and reusability between programs. ***FY 2015 Plans:*** Continue Build 5.0, 5.1 and 5.2 developments required for CVN78, AEGIS Baseline 9.C2, and AEGIS Baseline 9 & 7.2 backfit. Integrate CVN78 Dual Band Radar and Cooperative Engagement Capability (CEC) Enhanced Trainer (CET). Complete Build 5.2 SRR. Complete Build 5.0 Test Readiness Review (TRR) and commence Build 5.0 Test and Evaluation. Complete Build 5.1 and 5.2 System Functional Review (SFR) and Preliminary Design Review (PDR) and associated systems engineering and development analysis. Support AEGIS Baseline 9.C2 PDR and SSDS development effort. Initiate Critical Design Review (CDR) development and systems engineering efforts to support FY17 AEGIS Baseline 9.C2 CDR. Initiate Interface Control Documents (ICD) development for hardware and software integration into 9C.2. ***FY 2016 Base Plans:*** Continue Build 5.1 and 5.2 development required to support CVN78 and AEGIS Baseline 9.C2 training capability. Complete Build 5.1 CDR and Test Readiness Review (TRR). Support CVN78 SSDS MK2 Mod 6C engineering tests at Wallops Island for BFTT Build 5.1 Integration and Combat System light off. Continue Combat Systems level Integration engineering for CVN78 Dual Band Radar and Cooperative Engagement Capability (CEC) Enhanced Trainer (CET) training capabilities. Complete Build 5.2 CDR. Complete Build 5.0 Certification to support Baseline 9. Initiate software development for Build 5.2 and necessary integration engineering to support Aegis Baseline 9.C2 Aegis Training Domain (ATD) development. Initiate development of requirements to support TSTC capability improvements to support tactical training requirements of AEGIS and SSDS ACB 20, to include training system modifications to support integration of the Air and Missile Defense Radar (AMDR) stimulation capability. Initiate study to determine method of simulating and integrating real world environments within shipboard sensors for Anti-Area / Area Denial (A2AD) training.					

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Investigate options to integrate of Full Motion Video capability onto AEGIS and SSDS to provide required realism/fidelity for Surface Warfare Training. Continue to modify TSTC training capability, as components are modernized or new components developed, into a common core system to eliminate redundancies between the AEGIS and SSDS. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	10.849	16.768	9.954	-	9.954

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• OPN 2762: *Other Training Equipment (Surface BFTT/TSTC portion only)*	27.213	41.128	37.096	-	37.096	38.951	38.105	38.880	39.658	-	360.949
• 0604307N/3357: *Aegis Training Improvement Program*	3.733	8.994	15.353	-	15.353	12.874	11.322	9.860	8.703	-	70.839
• 0604755N/3358: *SSDS Training Improvement Program*	1.060	1.120	3.136	-	3.136	3.000	7.658	7.574	8.795	-	32.343

Remarks

D. Acquisition Strategy

The BFTT acquisition strategy for system development utilizes the Advanced Capability Build (ACB) development model, as mandated by OPNAV. Incremental acquisition and fielding, utilizing commercial off-the-shelf technology to the extent possible, is in accordance with OPNAV LTR Ser N86/9U179029 dtd 31 Jul 09.

E. Performance Metrics

TSTC BFTT Core component will be developed to meet the following developmental milestones. These milestones are in close alignment with AEGIS BL9.C2 development milestones and also will support SSDS MK 2 development and integration events.

BFTT 5.1 SRR Q4 2014 4 2014
BFTT 5.2 SRR Q1 2015 1 2015
BFTT 5.0 TRR Q1 2015 1 2015
BFTT 5.1 SFR/PDR Q3 2015 3 2015

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

BFTT 5.2 SFR/PDR Q4 2015 4 2015
BFTT 5.1 Certification Intial Install CG54 Q4 2016 4 2016
BFTT 5.0 Certification Q1 2016 1 2016
BFTT 5.1 CDR Q1 2016 1 2016
BFTT 5.2 CDR Q2 2016 2 2016
BFTT 5.1 TRR Q3 2016 3 2016
BFTT 5.2 TRR Q2 2017 2 2017
BFTT 5.2 CPR for AEGIS Q2 2018 2 2018
BFTT 5.2 Certification for AEGIS Q1 2019 1 2019

TSTC Capability enhancements will be aligned to the AEGIS Training Improvement Program. TSTC Products will be provided to meet each major AEGIS BL9.C2 development milestones.

AEGIS BL9.C2 System Requirements Review Q1-2014, Q1-2014
AEGIS BL9.C2 System Functional Review Q3-2014, Q3-2014
AEGIS BL9.C2 Preliminary Design Review Q2-2015, Q2-2015
AEGIS BL9.C2 Critical Design Review Q4-2015, Q4-2015
AEGIS BL9.C2 Test Readiness Review Q4-2016, Q4-2016
AEGIS BL9.C2 Light-off Q3-2017, Q3-2017

TSTC Capability enhancements will be aligned to the SSDS Training Improvement Program. TSTC Products will be provided to meet each major SSDS development milestones.

SSDS MK2 ACB 12 IPR 7 Q1-2014, Q1-2014
SSDS MK2 ACB 12 IPR 8 Q2-2014, Q2-2014
SSDS MK2 ACB 12 IPR 9 Q3-2014, Q3-2014
SSDS MK2 ACB 12 IPR 10 Q1-2015, Q1-2015
SSDS MK2 ACB 12 IPR 11 Q2-2015, Q2-2015
SSDS MK2 ACB 12 IPR 12 Q3-2015, Q3-2015
SSDS MK2 ACB 12 IPR 13 Q1-2016, Q1-2016
SSDS MK2 ACB 12 IPR 14 Q2-2016, Q2-2016
SSDS MK2 ACB 12 IPR 15 Q3-2016, Q3-2016

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 1427 / *Surface Tactical Team Trainer (STTT)*	

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
Hardware Development	WR	NSWC Dam Neck : Dam Neck	13.625	0.675	Dec 2013	0.292	Dec 2014	0.259	Dec 2015	-		0.259	Continuing	Continuing	Continuing
Systems Engineering	WR	SEA02/NSWC Dam Neck/NSWC Dahlgren : NAVSEA/ Dam Neck/NSWC Dahlgren	13.875	1.807	Dec 2013	1.557	Dec 2014	1.393	Dec 2015	-		1.393	-	18.632	-
		Subtotal	27.500	2.482		1.849		1.652		-		1.652	-	-	-

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
Software Development	WR	NSWC Dam Neck/ SEA 02 : WR/REQN	27.837	6.006	Dec 2013	12.953	Dec 2014	6.463	Dec 2015	-		6.463	-	53.259	-
		Subtotal	27.837	6.006		12.953		6.463		-		6.463	-	53.259	-

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	NSWC Dam Neck/ SEA 02 : WR/REQN	7.983	1.523	Dec 2013	0.962	Dec 2014	0.854	Dec 2015	-		0.854	-	11.322	-
		Subtotal	7.983	1.523		0.962		0.854		-		0.854	-	11.322	-

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
Government Engineering Support	WR	NSWC Dam Neck/ SEA02 : WR/REQN	6.688	0.838	Dec 2013	1.004	Dec 2014	0.985	Dec 2015	-		0.985	-	9.515	-
		Subtotal	6.688	0.838		1.004		0.985		-		0.985	-	9.515	-

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 1427 / *Surface Tactical Team Trainer (STTT)*	

	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	70.008	10.849		16.768		9.954		-		9.954	-	-	-

Remarks

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

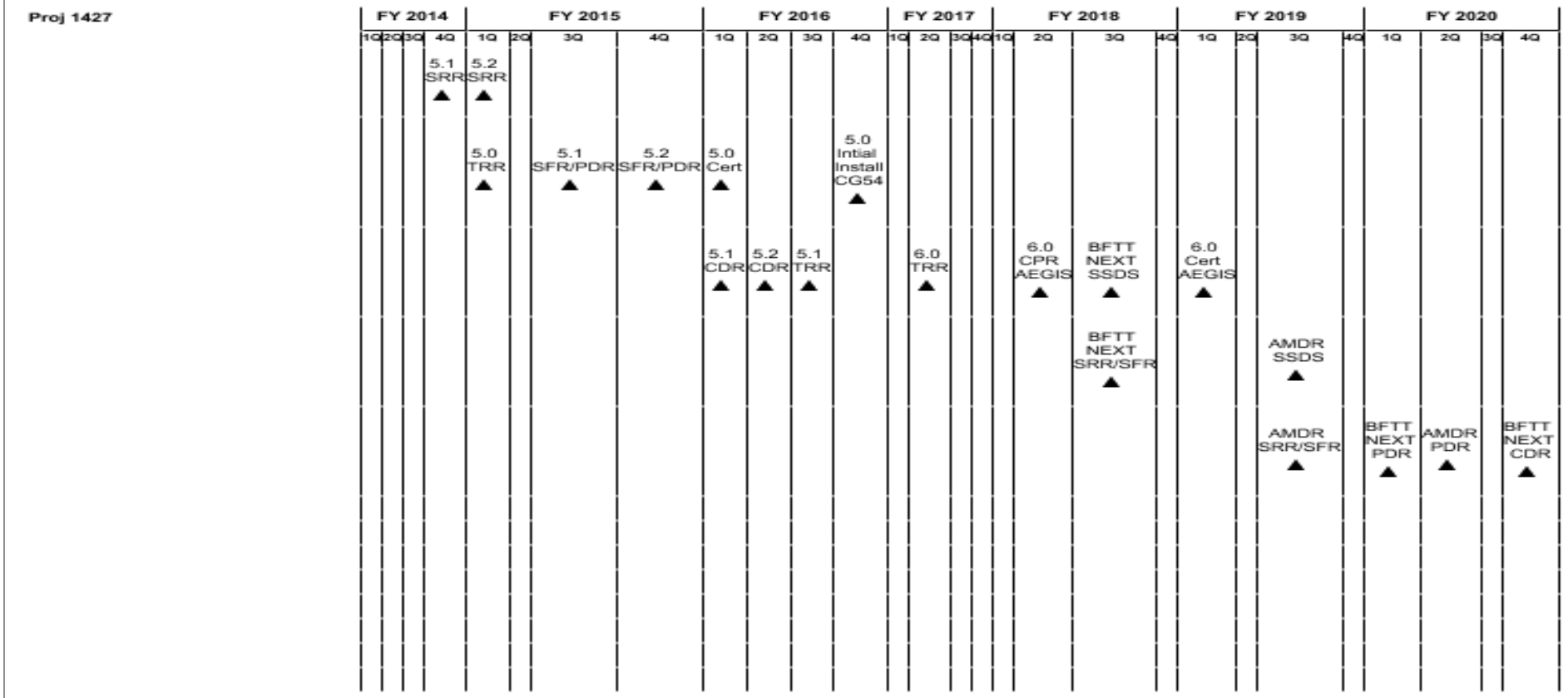


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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1427				
BFTT 5.1 SRR	4	2014	4	2014
BFTT 5.2 SRR	1	2015	1	2015
BFTT 5.0 TRR	1	2015	1	2015
BFTT 5.1 SFR/PDR	3	2015	3	2015
BFTT 5.2 SFR/PDR	4	2015	4	2015
BFTT 5.1 Certification Intial Install CG54	4	2016	4	2016
BFTT 5.0 Certification	1	2016	1	2016
BFTT 5.1 CDR	1	2016	1	2016
BFTT 5.2 CDR	2	2016	2	2016
BFTT 5.1 TRR	3	2016	3	2016
BFTT 5.2 TRR	2	2017	2	2017
BFTT 5.2 CPR for AEGIS	2	2018	2	2018
BFTT 5.2 Certification for AEGIS	1	2019	1	2019
BFTT NEXT SSDS ACB18	3	2018	3	2018
BFTT NEXT SRR/SFR	3	2018	3	2018
AMDR SSDS Platform Integration	3	2019	3	2019
AMDR SSDS SRR/SFR	3	2019	3	2019
BFTT NEXT PDR	1	2020	1	2020
AMDR PDR	2	2020	2	2020
BFTT NEXT CDR	4	2020	4	2020

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 2124 / *Air Warfare Training*	

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
2124: *Air Warfare Training*	29.263	10.395	1.262	1.611	-	1.611	1.654	1.671	1.707	1.741	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project transitions new training and range system technologies for use in Naval Aviation training. Products from this effort are directly tied to the Navy Aviation Simulation Master Plan (NASMP), MH-60R/S master plan, Unmanned Aerial Systems (UAS) master plan, the Live Virtual Constructive (LVC) program, component technologies, including the Multiplex Data Bus Controller Translator Transmitter, F/A-18C-F Requirements Procurement Plan (RPP), open architecture implementation, multiple technology refresh efforts and the Multi-Mission Maritime Aircraft/P-8 programs. These efforts will support training optimization of future naval aviation training/preview/mission rehearsal systems (fixed, deployed, and unmanned). Tasks include: specification development to provide for common, modular, High Level Architecture compliant, high fidelity Distributed Mission Training and mission rehearsal capabilites ashore and afloat. Technologies to be developed and integrated include: intelligent semi-automated forces (SAF) technologies, automated performance measurement technology, advanced net-ready weapons simulation, Air to Air/ Air to Ground, visual/sensor enhancement, sensor/weather server, common post mission assessment technologies, tablet mission preview technology, advanced visual-sensor technology, high resolution helmet mounted, and/or flat panel displays, 20-20 visual acuity image generation, NAVAIR Portable Source Initiative improvements, common correlated data set technologies, common link, common software/database reuse technologies, advanced environmental effects modeling, fused radar/infra-red/electro-optic and acoustic sensor simulations, aerodynamic modeling, physics-based infra-red simulations, spatial disorientation research, comms degradation modeling, and final Test and Evaluation (T&E) within the Aviation Training Technology Integration Facility (ATTIF), Naval Air Warfare Center-Aircraft Division. This Manned-Flight Simulator (MFS) ATTIF capability provides a window to fleet aviators for critical comment, evaluation and fine tuning of new, interoperable, and innovative technologies such as LVC before final transition to the fleet. Naval Aviation Distributed Training Center, debrief/After Action Review (AAR), and intelligent training tools for the virtual environment are focused on human performance and trend analysis enhancements for fleet readiness and distributed mission training at all levels.

Metrics: These technology transitions seek to lower Total Ownership Costs of the training systems and life cycle costs, including: increasing software re-use, reduced instructor manning profiles, software-based fidelity enhancements and increased fleet readiness by enhancing overall system fidelity to the projected operating environments. NASMP readiness improvements are conservatively forecasted at 12-35% Training and Readiness improvement via synthetic environment upgrades and associated technology upgrades to stand-alone and networked simulators. Individual technology transition investments have routinely exceeded 300+% financial Return On Investment. Technology Readiness Levels, Training and Readiness, fleet readiness, and financial metrics are used.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: HUMAN/INSTRUCTIONAL SYSTEMS INTEGRATION	2.158	0.473	0.770	-	0.770
Articles:	-	-	-	-	-
Description: Develop common AAR and platform-unique post mission assessment, Intelligent Tactical SAF, and high fidelity simulator component technologies. AAR, and high fidelity components such as Intelligent SAF designs lower NASMP upgrade and simulator life-cycle costs. Integrate Voice-Capable SAF component					

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
technologies, improve open common instructor interface effectiveness and provide for multi-SAF exercise utilization. Analyze, develop, and integrate common architecture components for F/A-18C-F, EA-18G, MH-60R/S, Unmanned Aerial Systems (UAS) platforms, E-2C/D & USMC mission areas, intelligent instructor operator components, automated performance measurement technologies, Tactical Aircraft/ Multi-Mission Maritime Aircraft/ Reduced Oxygen Breathing Device-Spatial Disorientation devices common graphic user interface initiatives, common threat system formats, Next Generation Threat System technology transitions, Joint SAF compatability, cross platform post mission performance measurement, and after action review/debrief innovations, thereby maximizing return on investment for instructional systems technology investments. ***FY 2014 Accomplishments:*** Provide continued development and support for Instructional Systems based brief preview, debrief and tactical training assessment technologies for all Naval Aviation Platforms, to include data and trend-analysis. Provide technology in support of common simulation product lines, UAS common control station, and debrief visualization. ***FY 2015 Plans:*** Provide continued development and support for Instructional Systesm based brief/preview, debrief, and tactical assessment technologies for all Naval Aviation platforms, to include data and trend analysis. Provide technology in support of common, and open-architecture simulation product lines, UAS training, UAS common control station, and debrief visualizations. ***FY 2016 Base Plans:*** Provide continued support to the NAMRU research team to complete both Reduced Oxygen Breathing Device/ Hypoxia system configuration, test and evaluation, and final prototyping development/support for the Spatial Disorientation family of systems to meet new curricula and requirements. Provide training station/instructional systems support for standard post-mission assessment software, tactical trend analysis and Common Simulation Product development. ***FY 2016 OCO Plans:*** N/A					
Title: SENSORS AND ENVIRONMENT	1.059	0.200	0.640	-	0.640
Articles:	-	-	-	-	-
Description: Develop common and platform unique sensor, visual, and environmental simulation (atmospherics or acoustics) into fidelity upgrades with Commercial Off The Shelf and/or Government Off the Shelf Software (GOTS). Perform risk reduction, advanced displays innovation, test and evaluation, integration, and production					

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
of Common Sensor Model, High Fidelity Active-Acoustics Sensor Operator Training, 3D weather effects, 3D Ocean acoustic modeling, new ROBD Spatial Disorientation, and legacy device technologies. Demonstrate GOTS capability for cost-effective database materialization, Material Properties Reference Dataset library, associated NAVAIR Portable Source Iniative specifications and processes for implementation on Distributed Mission Training, deployed trainers, legacy, and new visual system upgrade programs. In support of Navy Aviation Simulation Master Plan (NASMP) upgrade efforts, develop texture storage, sensor-environmental effects, NAVAIR Portable Source Initiative material reference processes/standards, automated technology applications for real time publishing, shadows, cultural lighting, combat, and weather effects and very high-resolution visualization technologies, to include tablet-based mission preview for tactical aircrew. ***FY 2014 Accomplishments:*** Test, evaluate and demonstrate new platform and composite squadron mission preview sensor-prediction, Carrier Qualification (CQ) and after-action review (AAR) technologies that improve individual, squadron unit and wing readiness. Provide Government Off the Shelf Software (GOTS)/ Commercial Off The Shelf (COTS) applications for common and platform unique visual/sensor technologies in all phases of training on mission preview/preparation. ***FY 2015 Plans:*** Continue to develop, test, and demonstrate new platform and composite/MEU squadron mission preview, sensor prediction, CQ part-task training, and AAR technologies that improve individual, squadron, and wing readiness metrics. Provide GOTS/or COTS applications for platform unique, or common visual-sensor technology challenges for all phases of training or mission preview. Perform new sensor-fusion and synthetic vision technology development to meet fleet requirements, and emerging UAS CCS, or UAS-platform unique requirements. ***FY 2016 Base Plans:*** Support final acquisition plan documentation, specifications, and testing for the CQ mobility part task trainer prototypes, and for all after action/post-mission assessment technologies. Using sensor fusion, and simulation-based displacement mapping, provide enhanced technology development for low-level flight operations training over water environments, and Terrain-Following, flight training in all weather, sensor environments. Provide enhanced threat presentations with improved tactical behaviors for Next-Generation Threat System application. ***FY 2016 OCO Plans:*** N/A					
Title: LIVE VIRTUAL CONSTRUCTIVE (LVC), AND VISUALS	7.178	0.589	0.201	-	0.201

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Articles:	-	-	-	-	-

Description: Air Warfare Training Development provides for risk mitigation and next generation platform, Unmanned Aerial Systems, Live Virtual Constructive and associated visualization component development for Navy aviation distributed mission training centers (NADTC), and for stand-alone and small footprint deployable devices. Support the NASMP upgrade efforts and Type/Model/Series programs with advanced visual system display configurations requirements. Assess trainee cognitive requirements and the development and incorporation of next generation LVC, UAS constructive and associated debrief/AAR visualization component technologies. Additionally, AWTD provides for advanced virtual component fidelity improvements for Live Virtual Constructive capability (such as "Mobility" Part-Task Trainers and the Multiplex Data Bus Controller Translator Transmitter (MDBCTT)). Live Virtual Constructive (LVC) technologies will facilitate advanced, cost effective weapons and tactics training and emerging capability requirements in the Air-Sea battlespace and Naval Integrated Fire Control-Counter Air (NIFC-CA) capabilities development.

FY 2014 Accomplishments:
Provide continued support to incremental LVC technology development, enhanced visual, sensor, environmental, motion, aero and ocean state fidelity for new virtual training and readiness capabilities. Provide man-in-the-loop and multiplexer Technology Readiness Level (TRL) assessment at Manned Flight Simulator (MFS) and assess other mobility training application areas for improved fleet training and life-cycle cost reductions.

FY 2015 Plans:
Provide continued support to incremental LVC component technology development, to enhance visual, sensor, environmental, motion, aerodynamics, and ocean fidelity for required training and readiness improvements. Provide man-in-the-loop TRL assessment at MFS, and assess Distributed Mission Readiness Trainer-class systems, and other mobility focused training devices for improved fleet training, T&D metrics, and life-cycle cost reductions.

FY 2016 Base Plans:
Provide continued development and prototype Spatial Disorientation training system syllabus, visual system enhancements, and SD research. Provide Office of Naval Research LVC enhancements. Complete Multiplex Data Bus Controller Translator Transmitter initial integration/ demonstrations for F/A-18E/F embedded training capability.

FY 2016 OCO 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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A					
Accomplishments/Planned Programs Subtotals	10.395	1.262	1.611	-	1.611

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• APN/0705: *COMMON GROUND EQUIPMENT - TRAINING*	152.654	156.522	218.515	-	218.515	206.566	199.798	195.987	197.335	Continuing	Continuing
• OPN/4204: *Weapons Range Support Equipment (WRSE)/LVC*	-	-	-	-	-	-	11.910	27.816	9.901	Continuing	Continuing

Remarks

D. Acquisition Strategy

Air Warfare Training Development (AWTD) is a 6.7 RDT&E joint technology transition program tied to Navy Aviation Simulation Master Plan (NASMP), USMC upgrades and the various platform simulation master plans with the purpose of transitioning advanced training and mission preview/rehearsal technologies. AWTD provides risk mitigation, test and evaluation, and prototype development for stand-alone, manned, un-manned, distributed, open systems and deployed training systems for the warfighter utilizing an Integrated Product Team approach and a combination of reimbursable and direct cite/cost-plus time and material (T&M) contracts.

E. Performance Metrics

Naval Air Warfare Center-Training Systems Division (NAWC-TSD): # of transitions to Fleet Platforms. For each transition, successful Technical Readiness Level (TRL) testing and device Ready for Training (RFT) to Fleet platforms. Seminal transition events are either RFT or tech-refresh Authority to Operate.
NAWC-Aircraft Division (AD): Complete TRL & compliance testing for NASMP and Information Assurance directives.

RSC, Inc.: Government acceptance of evaluation of Small Business Innovation Research (SBIR) device testing.

Aptima, Inc.: Government acceptance of evaluation of SBIR device testing.

CTSI, Inc.: Government acceptance of evaluation of SBIR device testing and Multiplex Data Buse Controller Translator Transmitter warfare testing.

AEGIS TECHNOLOGIES, Inc.: Government acceptance of BAA research of ocean modeling improvements in 3D layered propogation loss, and reverberation.

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 2124 / *Air Warfare Training*	

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
Hardware Development	C/CPFF	RSC INC. : ORLANDO, FL	0.000	-		0.050	Mar 2015	-		-		-	-	0.050	0.050
Software Development	SS/CPFF	CTSI INC. : LEXINGTON PARK, MD	0.000	5.678	Aug 2014	-		-		-		-	-	5.678	5.678
Software Development	C/CPFF	RSC INC. : ORLANDO, FL	0.314	0.155	Jul 2014	-		-		-		-	-	0.469	0.469
Software Development	C/CPFF	AEGIS TECH : ORLANDO, FL	0.000	0.450	Sep 2014	-		-		-		-	-	0.450	0.450
Software Development	WR	NAWC-AD : PAX RIVER, MD	1.176	-		-		0.393	Nov 2015	-		0.393	Continuing	Continuing	Continuing
Software Development	WR	NAWC-TSD : ORLANDO, FL	16.432	2.935	Nov 2013	0.509	Nov 2014	0.577	Nov 2015	-		0.577	Continuing	Continuing	Continuing
Software Development	WR	NAMRU : DAYTON, OH	0.195	0.225	May 2014	-		0.100	Nov 2015	-		0.100	Continuing	Continuing	Continuing
Software Development	FFRDC	SANDIA, NATIONAL LAB : ALBUQUERQUE, NM	0.075	0.205	Mar 2014	0.061	Mar 2015	0.091	Nov 2015	-		0.091	Continuing	Continuing	Continuing
Prior Year Prod Dev No Longer Funded in the Budget or Out Years	Various	Various : Various	0.938	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	19.130	9.648		0.620		1.161		-		1.161	-	-	-

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
Systems Engineering	C/CPFF	ENGILITY INC. : LEXINGTON PARK, MD	0.343	-		0.300	Mar 2015	-		-		-	-	0.643	0.643
Prior Year Support No Longer Funded in the Budget or Out Years	Various	Various : Various	1.753	-		-		-		-		-	Continuing	Continuing	Continuing

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 2124 / *Air Warfare Training*	

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
		Subtotal	2.096	-		0.300		-		-		-	-	-	-

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	NAWC AD : PAX RIVER, MD	6.439	0.565	Nov 2013	0.160	Dec 2015	0.235	Nov 2015	-		0.235	Continuing	Continuing	Continuing
		Subtotal	6.439	0.565		0.160		0.235		-		0.235	-	-	-

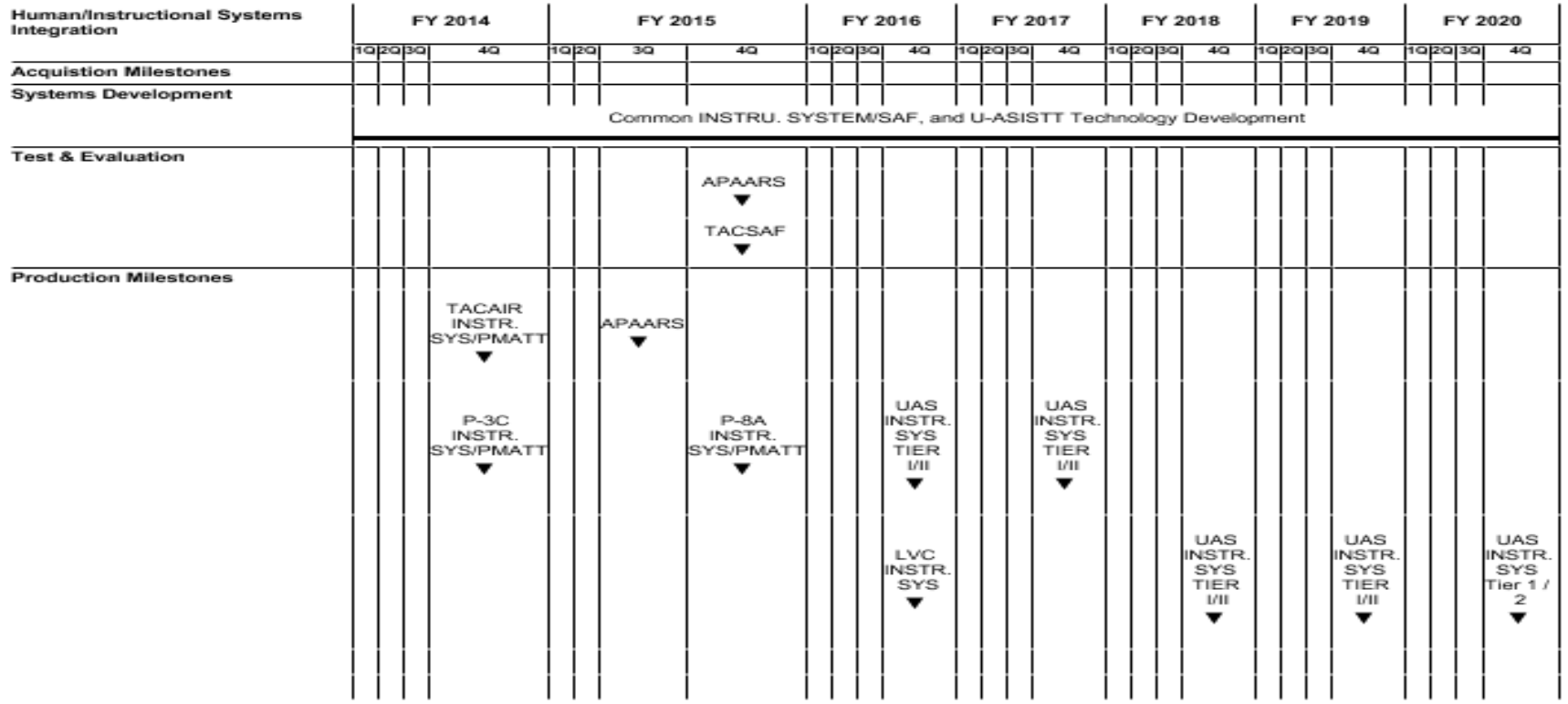
Management Services ($ in Millions)

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
Program Management Support	C/CPFF	METI CORP : PAX RIVER, MD	0.874	0.167	Nov 2013	0.167	Nov 2014	0.200	Nov 2015	-		0.200	-	1.408	1.408
Travel	Allot	NAVAIR : PAX RIVER, MD	0.512	0.015	Nov 2013	0.015	Nov 2014	0.015	Nov 2015	-		0.015	Continuing	Continuing	Continuing
Prior year Mgmt Sup no longer funded in the FYDP	Various	Various : Various	0.212	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	1.598	0.182		0.182		0.215		-		0.215	-	-	-

	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
Project Cost Totals	29.263	10.395		1.262		1.611		-		1.611	-	-	-

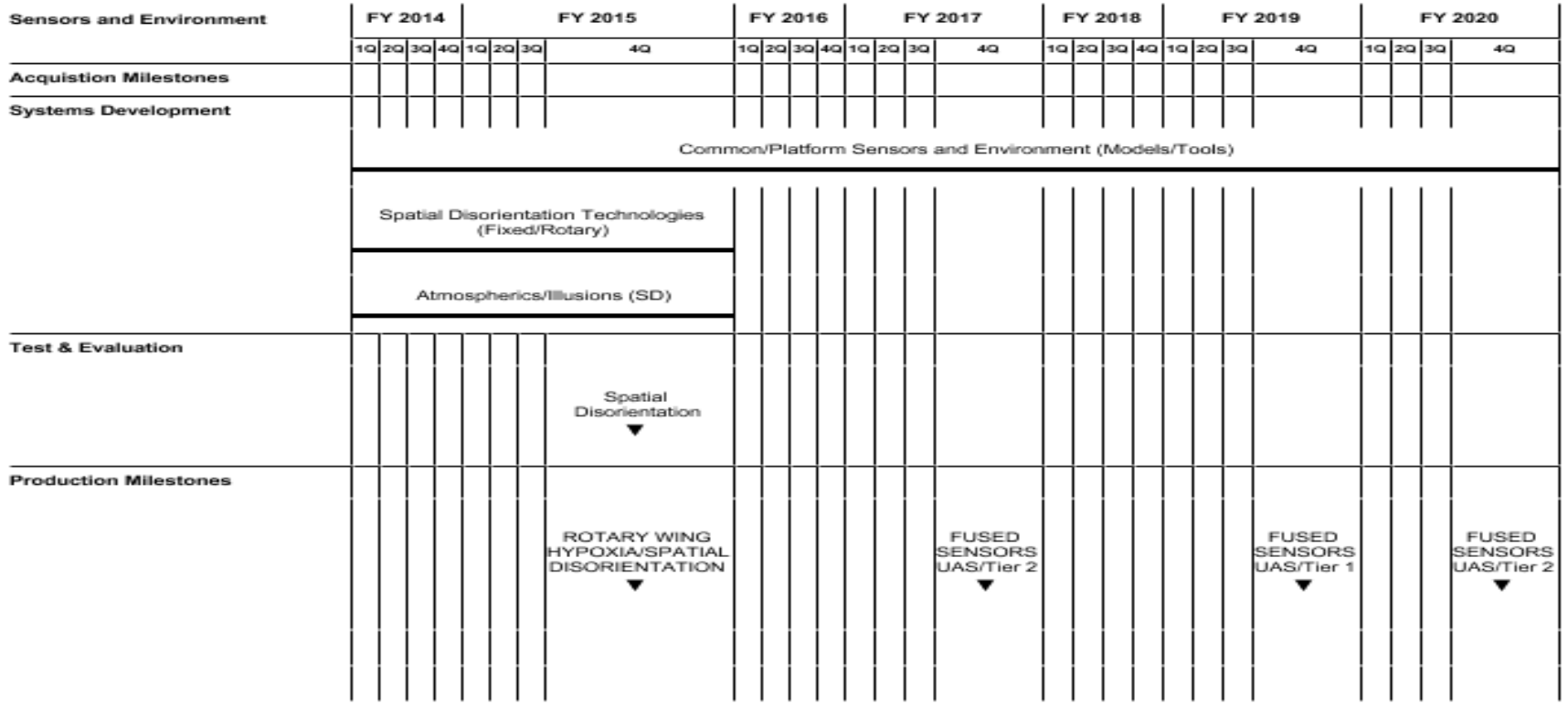
Remarks

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*



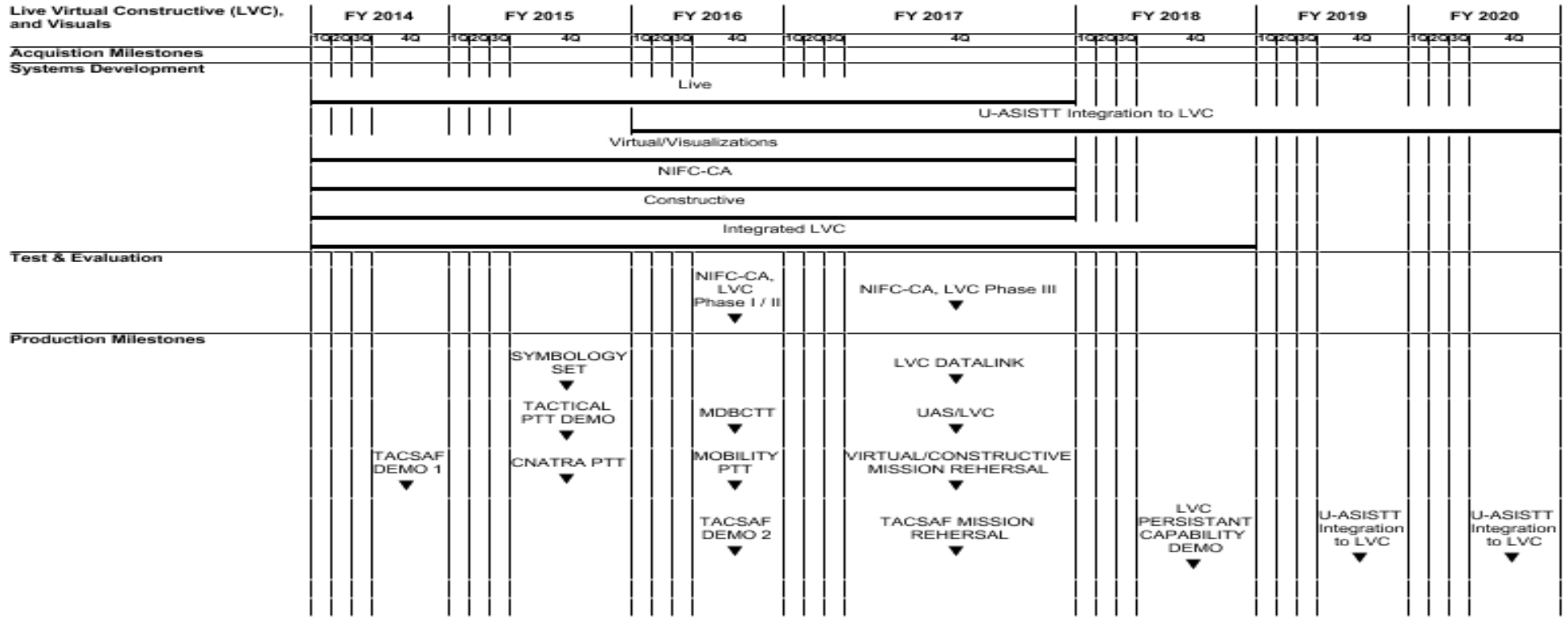
2016PB - 0204571N - 2124

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*



2016PB - 0204571N - 2124

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*



2016PB - 0204571N - 2124

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Human/Instructional Systems Integration				
Systems Development: Common INSTR. SYSTEM/SAF, and U-ASISTT Technology Development	1	2014	4	2020
Test & Evaluation: APAARS	4	2015	4	2015
Test & Evaluation: TACSAF	4	2015	4	2015
Production Milestones: APAARS, 1ST ARTICLE	3	2015	3	2015
Production Milestones: TACAIR INSTR. SYS PMATT	4	2014	4	2014
Production Milestones: P-3C INSTR. SYS PMATT, Increment I	4	2014	4	2014
Production Milestones: P-8A INSTR. SYS PMATT, Increment II	4	2015	4	2015
Production Milestones: UAS INSTR. SYS Tier 1/ 2	4	2016	4	2016
Production Milestones: UAS INSTR SYS Tier 1/ 2	4	2017	4	2017
Production Milestones: LVC INSTR. SYS Component Technologies	4	2016	4	2016
Production Milestones: UAS INSTR. SYS Tier 1 /2	4	2018	4	2018
Production Milestones: UAS INSTR SYS Tier 1 / 2	4	2019	4	2019
Production Milestones: UAS INSTR. SYS Tier 1 / 2	4	2020	4	2020
Sensors and Environment				
Systems Development: Common/Platform Sensors and Environment (Models/Tools)	1	2014	4	2020
Systems Development: Spatial Disorientation Technologies (Fixed/Rotary)	1	2014	4	2015
Systems Development: Atmospherics/Illusions Spatial Disorientation	1	2014	4	2015
Test & Evaluation: Spatial Disorientation Visual Systems Upgrade	4	2015	4	2015
Production Milestones: ROTARY WING HYPOXIA/SPATIAL DISORIENTATION (SD)	4	2015	4	2015
Production Milestones: FUSED SENSORS UAS/Tier 2	4	2017	4	2017
Production Milestones: FUSED SENSORS UAS/Tier 1	4	2019	4	2019

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: FUSED SENSORS UAS/Tier 2.	4	2020	4	2020
Live Virtual Constructive (LVC), and Visuals				
Systems Development: Live	1	2014	4	2017
Systems Development: U-ASISTT Integration to LVC	1	2016	4	2020
Systems Development: Virtual/SAF Visualizations	1	2014	4	2017
Systems Development: NIFC-CA FEA	1	2014	4	2017
Systems Development: Constructive	1	2014	4	2017
Systems Development: Integrated LVC Components	1	2014	4	2018
Test & Evaluation: NIFC-CA, LVC, Fallon, Phase I / II	4	2016	4	2016
Test & Evaluation: NIFC-CA, LVC, Fallon, Phase III	4	2017	4	2017
Production Milestones: SYMBOLOGY SET	4	2015	4	2015
Production Milestones: LVC DATALINK	4	2017	4	2017
Production Milestones: UAS/LVC Component Technologies	4	2017	4	2017
Production Milestones: MDBCTT Capability Demo	4	2016	4	2016
Production Milestones: TACTICAL PTT DEMO	4	2015	4	2015
Production Milestones: MOBILITY PTT	4	2016	4	2016
Production Milestones: CNATRA PTT	4	2015	4	2015
Production Milestones: VIRTUAL/CONSTRUCTIVE MISSION REHERSAL	4	2017	4	2017
Production Milestones: TACSAF DEMO 1	4	2014	4	2014
Production Milestones: TACSAF DEMO 2	4	2016	4	2016
Production Milestones: TACSAF MISSION REHERSAL	4	2017	4	2017
Production Milestones: LVC PERSISTANT CAPABILITY DEMO	4	2018	4	2018
Production Milestones: U-ASISTT Integration to LVC	4	2019	4	2019
Production Milestones: U-ASISTT Integration to LVC.	4	2020	4	2020

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3093 / *TACTS/LATR Replacement*	

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
3093: *TACTS/LATR Replacement*	58.413	4.250	10.349	19.252	-	19.252	16.070	24.478	4.313	4.420	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Tactical Combat Training System (TCTS) will provide the Navy a replacement for the Tactical Aircrew Combat Training System (TACTS) and Large Area Tracking Range (LATR) systems. TCTS will also provide fleet deployable training for at-sea training and tactics development. By providing a rangeless capability, the system will greatly increase the area where live instrumented training can be conducted. Fielding of a pod system is complete at TACTS sites. The program incorporates an evolutionary development (incremental) towards an encrypted system capable of supporting a broad spectrum of naval platforms through weapons simulations, participant sensor stimulation, open architecture and an encrypted/long range secure data link.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: TACTS/LATR REPLACEMENT	4.250	10.349	19.252	-	19.252
Articles:	-	-	-	-	-
Description: TCTS: Qualify and complete the Rangeless Pod system fielding for CVW-5 CVN installation, including the complete Integrated Logistics products and training. Define Test & Training Enabling Achitecture (TENA) compliant interface between TCTS and an Advance Display System (ADS). Develop a Rack-Mounted subsystem for use on rotary wing and transport aircraft. Continue development of the encrypted data link. Develop related training range integration.					
FY 2014 Accomplishments: Update technical specifications and related documentation for the Request For Proposal (RFP). Conduct RFP review with the Milestone Decision Authority prior to RFP release.					
FY 2015 Plans: Conduct source selection on responses to the RFP. Conduct performance, cost, and technical readiness assessment on the proposals.					
FY 2016 Base Plans: Conduct Intergrated Baseline Review to establish a Performance Measurement Baseline with the contractor. Increase of $9M from FY15 to FY16 reflects software development efforts towards encrypted TCTS solution to begin in FY2016.					
FY 2016 OCO 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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A					
Accomplishments/Planned Programs Subtotals	4.250	10.349	19.252	-	19.252

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• OPN/4204: *Weapons Range Support Equipment (WRSE)/TCTS*	3.269	3.817	1.598	-	1.598	4.044	3.827	3.906	4.025	Continuing	Continuing
• APN/0725: *Other Production Charges/Tactical Combat Training System (TCTS)*	5.268	5.630	2.455	-	2.455	0.959	1.468	21.379	21.806	Continuing	Continuing

Remarks

D. Acquisition Strategy

Tactical Combat Training System will employ an evolutionary incremental acquisition strategy. This strategy will provide for the development of a system that meets the Operational Requirements Document.

E. Performance Metrics

Contractor (TBD): National Security Agency (NSA) approved encrypted Data Link Transceiver (DLT). Successful Engineering Development Model testing of encrypted DLT requirements with NSA.

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3093 / *TACTS/LATR Replacement*	

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
Hardware Development	TBD	TBD : TBD	0.000	-		2.100	Jan 2016	-		-		-	-	2.100	2.100
Software Development	TBD	TBD : TBD	0.000	-		2.658	Jan 2016	12.967	Mar 2016	-		12.967	-	15.625	15.625
Software Development	C/CPFF	BOEING : ST. LOUIS, MO	0.000	-		-		0.866	Mar 2016	-		0.866	-	0.866	0.866
Prior Year Prod Dev No Longer Funded in the Budget or Out Years	Various	Various : Various	10.901	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	10.901	-		4.758		13.833		-		13.833	-	-	-

Remarks

The change in contract award been made to reflect a change in contracting strategy to competitive from the previous plan to award sole source to the vendor that developed and produced the unencrypted TCTS. Delay in contract award allows time for Government to conduct the competition.

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
Systems Engineering	C/CPFF	JACOBS ENGINEERING : RIDGECREST, CA	1.438	1.280	Nov 2013	0.510	Nov 2014	0.970	Nov 2015	-		0.970	-	4.198	4.198
Systems Engineering	WR	NAWC-WD : CHINA LAKE, CA	0.358	0.096	Nov 2013	1.884	Nov 2014	0.114	Nov 2015	-		0.114	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWC-AD : PAX RIVER, MD	1.455	2.129	Nov 2013	2.424	Nov 2014	3.655	Nov 2015	-		3.655	Continuing	Continuing	Continuing
Prior Year Support No Longer Funded in the Budget or Out Years	Various	Various : Various	23.946	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	27.197	3.505		4.818		4.739		-		4.739	-	-	-

Remarks

Jacobs Engineering formally Tybrin Corporation.

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3093 / *TACTS/LATR Replacement*	

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	NAWC-AD : PAX RIVER, MD	0.772	0.356	Nov 2013	0.489	Nov 2014	0.265	Nov 2015	-		0.265	Continuing	Continuing	Continuing
Prior Year T&E No Longer Funded in the Budget or Out Years	Various	Various : Various	3.425	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	4.197	0.356		0.489		0.265		-		0.265	-	-	-

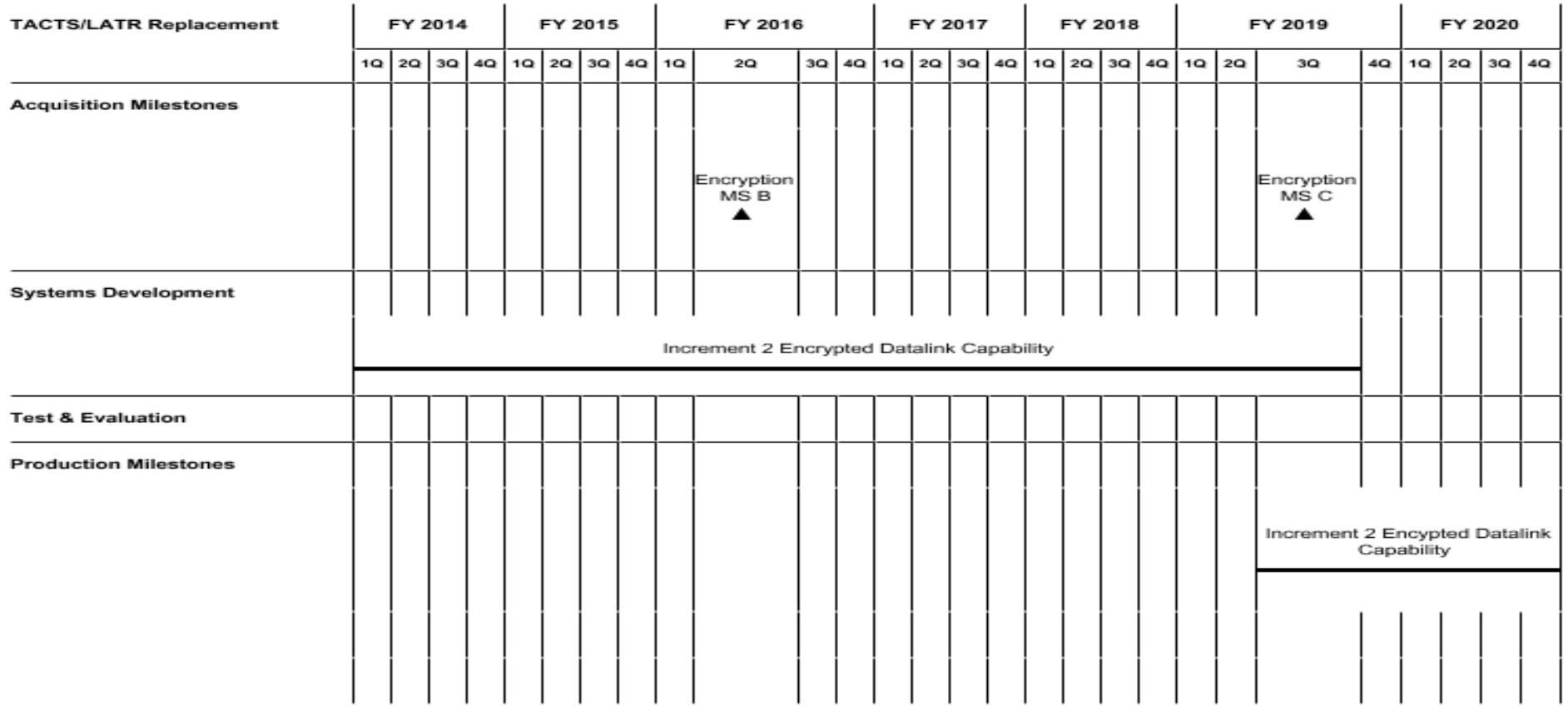
Management Services ($ in Millions)

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
Prog Mgnt Sup	WR	NAWC-AD : PAX RIVER, MD	0.000	0.381	Nov 2013	0.229	Nov 2014	0.388	Nov 2015	-		0.388	Continuing	Continuing	Continuing
Travel	Allot	NAVAIR : PAX RIVER, MD	0.059	0.008	Nov 2013	0.055	Nov 2014	0.027	Nov 2015	-		0.027	Continuing	Continuing	Continuing
Prior Year Mgmt No Longer Funded in the Budget or Out Years	Various	Various : Various	16.059	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	16.118	0.389		0.284		0.415		-		0.415	-	-	-

	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	58.413	4.250		10.349		19.252		-		19.252	-	-	-

Remarks

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*



2016PB - 0204571N - 3093

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
TACTS/LATR Replacement				
Acquisition Milestones: Encryption MS B	2	2016	2	2016
Acquisition Milestones: Encryption MS C	3	2019	3	2019
Systems Development: Increment 2 Encrypted Datalink Capability	1	2014	3	2019
Production Milestones: Increment 2 Encypted Datalink Capability	3	2019	4	2020

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 0204571N / *Consolidated Trng Sys Dev*				Project (Number/Name) 3356 / *High Fidelity Surface Trainers*			
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**
3356: *High Fidelity Surface Trainers*	-	9.492	6.814	4.768	-	4.768	6.760	1.182	-	-	-	29.016
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This line provides SEA 21 (PMS 339) funds for development of a High Fidelity Aegis Combined Integrated Air and Missile Defense (IAMD) and Anti-Submarine Warfare (ASW) Trainer (CIAT) to enable advanced warfare training (AWT) Phase II objectives to be accomplished ashore and to support Active and Passive Sonar Operations, Target Motion Analysis, Sonobuoy Localization, Command and Control, and execution of ASW Kill chain. Funds are provided for advanced component technology development, prototype evaluation, and technology readiness level assessment. Development of these trainers is in response to CNO Wholeness Review and COMNAVSURFOR requirements. This line also funds the research and development of advanced technologies to allow Close-In Weapon System (CIWS) 1B Baseline 2 integration at CSCS Damneck and Detachment West.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Combined IAMD ASW Trainer (CIAT)	9.492	5.404	4.768	-	4.768
Articles:	-	-	-	-	-
FY 2014 Accomplishments: Develop a high fidelity Combined IAMD and ASW Shore Based Trainer (SBT), research and develop advanced technologies necessary to introduce a SBT that will support scenario driven watch team practice of Standard Operating Procedures (SOPs), Tactics Techniques and Procedures (TTPs) and Pre-Planned Response (PPRs) against advanced threats in a realistic environment. Research and develop technologies and interfaces which will enable Surface Anti-Submarine Warfare Synthetic Trainer (SAST) to be integrated with the shore based trainer. Research and define hardware that maximizes the benefits of COTS equipment and reuse of tactical software components. Research and develop integration of models to allow for Navy Integrated Fire Control - Counter Air (NIFC-CA) training. Develop Engineering Development Model (EDM).					
FY 2015 Plans: Develop a high fidelity Combined IAMD and ASW Shore Based Trainer (SBT), research and develop advanced technologies necessary to introduce a SBT that will support scenario driven watch team practice of Standard Operating Procedures (SOPs), Tactics Techniques and Procedures (TTPs) and Pre-Planned Response (PPRs) against advanced threats in a realistic environment. Research and develop technologies and interfaces which will enable Surface Anti-Submarine Warfare Synthetic Trainer (SAST) to be integrated with the shore based trainer. Research and define hardware that maximizes the benefits of COTS equipment and reuse of tactical					

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3356 / *High Fidelity Surface Trainers*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
software components. Research and develop integration of models to allow for Navy Integrated Fire Control - Counter Air (NIFC-CA) trainer. ***FY 2016 Base Plans:*** Develop simulations and system architecture for the High Fidelity Combined IAMD & ASW Trainer (CIAT). Research and Develop Advanced technologies necessary to stimulate and emulate the AEGIS B/L 5.1 tactical system. Research and Develop a solution to virtualize AEGIS legacy tactical code to be able to re-host the tactical software on COTS hardware. These solutions will support scenario driven watch team practice of standard operating procedures (SOPs), Tactical Techniques and Procedures (TTPs) and Pre-Planned Response (PPRs) against advanced threats in a realistic environment. Research and Develop technologies and interfaces which will enable ASW trainers to be integrated with IAMD training system for integrated training events. Research and Develop models to allow for Navy Integrated Fire Control-Counter Air (NIFC-CA) training, NCTE integration and advanced threat models. ***FY 2016 OCO Plans:*** N/A					
Title: CIWS 1B Baseline 2 Schoolhouse Integration	-	1.410	-	-	-
Articles:	-	-	-	-	-
FY 2014 Accomplishments: N/A ***FY 2015 Plans:*** Research and Develop advanced technologies to allow CIWS 1B Baseline 2 integration at CSCS Dam Neck and Det West to enable accurate training. This project will introduce an upgrade to a training system which is insufficient for accurate training on the fleet configuration. Funds are provided for development of the technologies and test and evaluation of the integrated components. ***FY 2016 Base Plans:*** N/A ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	9.492	6.814	4.768	-	4.768

C. Other Program Funding Summary ($ in Millions)

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3356 / *High Fidelity Surface Trainers*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

The software development for High Fidelity Surface Trainers is accounted for in this RDT&E line. All production kits are procured in OPN PE 0804731N BLI 5662. The software development and introduction for the CIWS 1B Baseline 2 Schoolhouse Integration is accounted for in this RDT&E line. This upgrade will provide an enabling technology to an existing training system.

E. Performance Metrics

NSWC Dahlgren: Approved Combined IAMD and ASW Trainer (CIAT). Successful engineering development model (EDM) introducing advanced technologies necessary to simulate/stimulate the AEGIS Combat System elements required for operators stated in AEGIS Ashore Baseline 9 Weapons Specification (WS) 21200 series. Successful EDM introducing advanced technologies necessary to simulate/stimulate the Aegis Combat System elements required for operators of Aegis BL 7 system.

NSWC Dahlgren: Approved CIWS 1B Baseline 2 Schoolhouse Integration. 1) Accurate replication of CIWS 1B Baseline 2 configuration and functionality. 2) Successful introduction and test and evaluation to integrate and simulate the performance of Close In Weapons System (CIWS) 1B Baseline 2.

NSWC Carderock: Approved Combined IAMD & ASW Trainer (CIAT). Successful engineering development model introducing advanced technologies necessary to 1) simulate performance of AN/SQQ-89A(V)15 sonar system in alignment with fielding plan for initial Sonar software versions with capability to receive AN/SQQ-89A(V)15 coordinated routine modernizations and 2) replicate Combat Information Center (CIC) configuration and functionalities representative of AEGIS Baseline 9.

NUWC Newport: Approved Combined IAMD & ASW Trainer (CIAT). Develop ASW components to be integrated in the CIAT system for Technology Requirements Model (TRM) simulation of own ship and threat torpedos, and emulations of sonar devices.

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 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3356 / *High Fidelity Surface Trainers*	

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
SYSTEMS ENG	WR	NSWC DAHLGREN : DAHLGREN,VA	0.000	6.432	Nov 2013	3.940	Nov 2014	3.762	Nov 2015	-		3.762	-	14.134	-
SYSTEMS ENG	WR	NSWC CARDEROCK : CARDEROCK, MD	0.000	2.170	Nov 2013	2.388	Nov 2014	1.006	Nov 2015	-		1.006	-	5.564	-
SYSTEMS ENG	WR	NUWC NEWPORT : NEWPORT, RI	0.000	0.890	Nov 2013	0.486	Nov 2014	-		-		-	-	1.376	-
		Subtotal	0.000	9.492		6.814		4.768		-		4.768	-	21.074	-

	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	0.000	9.492		6.814		4.768		-		4.768	-	21.074	-

Remarks

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 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3356 / *High Fidelity Surface Trainers*

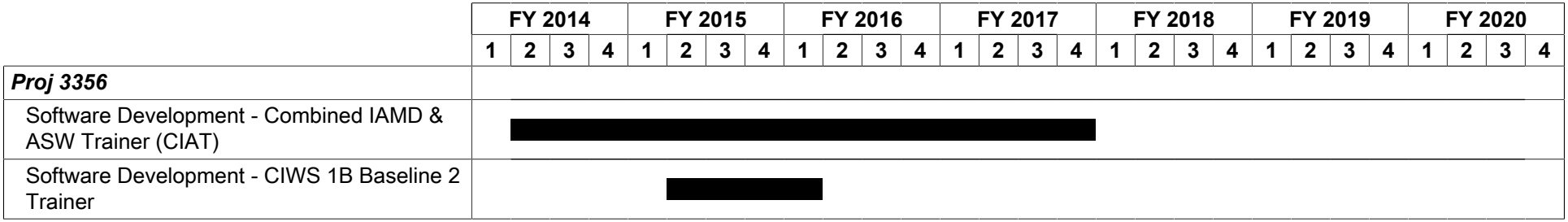


Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3356 / *High Fidelity Surface Trainers*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3356				
Software Development - Combined IAMD & ASW Trainer (CIAT)	2	2014	4	2017
Software Development - CIWS 1B Baseline 2 Trainer	2	2015	1	2016