Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy											Date: April 2022	
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 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	736.370	70.518	52.741	70.339	-	70.339	93.326	86.626	70.071	58.401	Continuing	Continuing
0604: *Training Range & Instr Dev*	159.592	3.506	2.446	3.380	-	3.380	4.263	4.221	4.075	4.147	Continuing	Continuing
1427: *Surface Tactical Team Trainer (STTT)*	239.745	38.974	30.744	13.721	-	13.721	17.334	16.298	15.757	15.965	Continuing	Continuing
2124: *Air Warfare Training*	53.807	1.455	1.606	1.754	-	1.754	1.723	1.742	1.772	1.799	Continuing	Continuing
3093: *TACTS/LATR Replacement*	251.843	22.603	16.350	51.287	-	51.287	69.998	64.357	48.453	36.483	Continuing	Continuing
3356: *High Fidelity Surface Trainers*	31.383	3.980	1.595	0.197	-	0.197	0.008	0.008	0.014	0.007	Continuing	Continuing

A. Mission Description and Budget Item Justification

0604 - Training Range and Instrumentation Development 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 training ranges, and Tactical Training Range (TTR) infrastructure improvements to include: Joint Display Subsystem, Radar Acquisition Display Subsystem, Electronic Warfare server, Link 16 interface, TTR Rotary Wing Tracking System technology improvements, Radiant Mercury Cross Domain Solution and Smart Antenna technology for automated frequency deconfliction.

1427 - Surface Tactical Team Trainer (STTT) develops modifications during sustainment of Battle Force Tactical Training (BFTT) system and modernization into the Advanced Training Domain (ATD). Both BFTT and ATD are the core system that is used to integrate the weapon system elements, and combat system components to create the Total Ship Training Capability (TSTC). BFTT and ATD continue to integrate and update, as new tactical capabilities are being introduced, to enable crew operator proficiency training for basic and sustainment level training events, through distributed strike group certification fleet synthetic training (FST) events and including COMPTUEX FST at Sea integration into Live, Virtual and Constructive (LVC) environment. Development of the next generation of ATD will align with combat systems virtualization efforts, and focus on increased fidelity to represent contested environments by leveraging the simulations used in the Combined Integrated Air and Missile Defense (IAMD) and Anti-Submarine Warfare (ASW) Trainer (CIAT), also known as CIAT to Sea. Continued Development is required to integrate new capabilities and interfaces to provide training for AEGIS and SSDS combat system capability upgrades, and to address the Fleet's Live, Virtual and Constructive (LVC) Fleet Training Wholeness initiative. Additionally, modernization is needed to support the DoD Training Transformation Plan, the Chief of Naval Operations Fleet Response Plan.

2124 - Air Warfare Training Development (AWTD) provides for advanced technology maturation, risk mitigation, study and demonstration in support of naval aviation manned and unmanned platforms, operational flight trainers, maintenance trainers, training networks, distributed mission training, and Live Virtual Constructive (LVC) training applications. Supports the Navy Aviation Simulation Master Plan (NASMP) upgrade efforts and Type/Model/Series programs with advanced visual system

display configurations requirements. Provides for Open Architecture (OA), and common systems interface applications. Assesses 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. AWTD investigates training applications of emerging technologies such as Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR) Head Mounted Displays (HMD), haptic feedback devices, and cross domain solutions/ cybersecurity solutions (e.g., Blockchain technology).

3093 - The Tactical Combat Training System (TCTS) Increment II will provide an improved environment for air combat training utilizing a secure air-to-air and air-to-ground data link, and will provide rangeless operation capability to Forward Deployed Naval Forces (FDNF). TCTS Increment II will provide encryption and an enhanced threat environment, as well as airborne participant instrumentation for multiple fixed and rotary wing platforms. Engineering Development Model (EDM) units in multiple form factors are being developed in FY19 through FY26 and will support Engineering and Developmental Testing events through FY27. The EDMs will be specifically utilized for testing in the following areas: Environmental Qualification, Software, High Accelerated Lifecycle, Ground System Integration, Airborne Subsystem Air Worthiness and Performance, Shipboard Ground Station, Internal Mount and Rack Mounted Subsystem (Internal Mount) Airworthiness and Performance and JSF Airworthiness and Performance. TCTS Increment II provides the foundational encrypted airborne network for implementation of Aviation Live Virtual Constructive capabilities.

3093 (cont) Aviation Live Virtual Constructive (LVC) Live Aircraft Integration Phase 1 funds the integration of Live aircraft into the Live, Virtual, Constructive, blended training environment to close the Great Powers Competition training capability gap for mission rehearsal for the high end fight. Aviation LVC will establish an integrated System of Systems (SoS) training environment bringing already-developed capabilities together with new developmental efforts to form a cohesive architecture that accurately emulates the high end fight for warfighter training. LVC takes a hybrid approach to aviation and Fleet-wide training where the training audience in the form of Live personnel operating Live equipment (to include aircraft and surface vessels) on a Tactical Training Range (TTR) will be teamed with Live aircrew operating simulators to provide a Virtual complement in the "Blue Air" picture. The "Red" adversary for this training is made up of Live people operating Live aircraft complemented by computer generated "Red" Constructive Air and Surface threats that stimulate the "Blue" Air displays and sensors as if a "Red" Live adversary were present. Range Training Officers (RTO) operating at the TTR Operations Center monitor and oversee the overall mission picture while directing Live participants and controlling Constructive threats.

3356 - Funds high fidelity Aegis Integrated Air and Missile Defense (IAMD) individual, instructor, strike group and team trainers for all Advanced Capability Build (ACB) and below Aegis baselines. This line provides funds for development of a High Fidelity Aegis Combined Integrated Air and Missile Defense (IAMD) and Anti-Submarine Warfare (ASW) Trainer (CIAT). Additionally, this line funds the development of the Surface Training and Readiness Management System (STRMS). This line supports Surface Training Advanced Virtual Environment (STAVE) methodology by researching and developing trainers that will create an immersive and interactive learning environment and support both Chief of Naval Operations (CNO) High Velocity Learning and Ready Relevant Learning intent and developing advanced technology for collecting Sailor performance data to determine measured benefit of delivered training. NOTE: In FY18, Mine Warfare Synthetic Training requirements previously captured within PE 0204571N / Project 3356 [(High Fidelity Surface Trainer)] were realigned to PE 0603502N / Project 1235 [(Mine Warfare Planning and Analysis)].

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy	Date: April 2022
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*

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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	75.508	56.741	0.000	-	0.000
Current President's Budget	70.518	52.741	70.339	-	70.339
Total Adjustments	-4.990	-4.000	70.339	-	70.339
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-4.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-3.500	0.000			
• SBIR/STTR Transfer	-1.490	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	70.339	-	70.339

Change Summary Explanation

The FY 2023 funding request was reduced by $2.547 million to account for the availability of prior year execution balances.

0604: FY 2023 funding request was reduced by $0.547 million to account for the availability of prior year execution balances.

1427: FY 2023 funding request was reduced by $2.0 million to account for the availability of prior year execution balances.

FY 2023 funding increase reflects the fact that the FY 2022 President’s Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
0604: *Training Range & Instr Dev*	159.592	3.506	2.446	3.380	-	3.380	4.263	4.221	4.075	4.147	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Training Range and Instrumentation Development 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 training ranges, and Tactical Training Range (TTR) infrastructure improvements to include: Joint Display Subsystem, Radar Acquisition Display Subsystem, Electronic Warfare server, Link 16 interface, TTR Rotary Wing Tracking System technology improvements, Radiant Mercury Cross Domain Solution and Smart Antenna technology for automated frequency deconfliction.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: LATR	1.812	0.752	0.099	0.000	0.099
Articles:	-	-	-	-	-
Description: Design, integrate and test modules to eliminate obsolete components in the Large Area Tracking Range (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 FY25. Complete ground system and PIP refresh sub-projects, in conjunction with, semi-annual system block upgrades. Conduct LATR Operational Security (OPSEC) Posture Improvements Sub-Project, Shipboard and Rotary Wing Technology Wing Upgrade (LSRTU) and LATR Navigation Technology Refresh (LNTR).					
FY 2022 Plans: Continue to develop and test Large Area Tracking Range (LATR) ground software 6.7 upgrades. Continue to develop operational system improvements and solutions to reduce LATR obsolescence issues.					
FY 2023 Base Plans: Provide annualized labor to complete delivery of FY22 funded software 6.7 upgrades.					
FY 2023 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 $0.653M decrease reflects end of investment in LATR as TCTS II begins fielding to Navy Training Ranges.					
Title: TTR	1.031	1.031	2.318	0.000	2.318
Articles:	-	-	-	-	-
Description: Develop and test upgrades to the Joint Display Subsystem (JDS), Radar Acquisition Display Subsystem (RADS), and Electronic Warfare (EW) server. Develop and test upgrades to the Link-16 Interface, JDS, RADS, and EW server. Develop and test Smart Antenna technology for automated frequency deconfliction. Disruptions and limitations in the Live-to-Virtual (LV) tactical radio communication segment of the Navy Continuous Training Environment (NCTE) network have interfered with the goals and objectives of Fleet Synthetic Training (FST) events. The Smart Antenna improves utilization of the frequency spectrum in the relay tower by performing calculations to predict RF interference and then avoid RF interference by assigning interfering frequency pairs to antenna pairs with greater isolation, thereby deconflicting frequencies. ***FY 2022 Plans:*** Develop and test 2022.1 upgrades to the Joint Display Subsystem (JDS), Radar Acquisition Display Subsystem (RADS), and Electronic Warfare (EW) server to remain in concert with evolving threat and tactical training requirements. Continue to develop and test Tactical Training Ranges (TTR) ground software changes to incorporate Live, Virtual, and Constructive (LVC) technology. ***FY 2023 Base Plans:*** Develop and test 2023.1 upgrades to the Joint Display Subsystem (JDS), Radar Acquisition Display Subsystem (RADS), and Electronic Warfare (EW) server to remain in concert with evolving threat and tactical training requirements. Develop and test Tactical Training Ranges (TTR) ground software changes to incorporate Live, Virtual, and Constructive (LVC) technology. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 $1.287M increase reflects increased investment in Tactical Training Range systems to prepare for Tactical Combat Training System (TCTS) Increment II integration and fielding.					
Title: Ocean Systems	0.663	0.663	0.963	0.000	0.963
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Description: Research, develop, and test technology improvements for fixed and portable Anti-Submarine Warfare (ASW) training ranges. ***FY 2022 Plans:*** To complete and deliver Phase 6 of the Next Generation Technology Development at various Anti-Submarine Warfare (ASW) training ranges. ***FY 2023 Base Plans:*** To complete and deliver Phase 7 of the Next Generation Technology Development at various Anti-Submarine Warfare (ASW) training ranges. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 $0.300M increase supports Anti-Submarine Warfare (ASW) range capabilities.					
Accomplishments/Planned Programs Subtotals	3.506	2.446	3.380	0.000	3.380

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPN/4204: *Weapons Range Support Equipment (WRSE)/ LSRTU/Ocean Systems*	86.669	87.748	106.209	-	106.209	116.986	143.531	161.697	164.389	Continuing	Continuing

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
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 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/CPFF	JACOBS ENG : RIDGECREST, CA	13.889	0.000		0.000		0.000		-		0.000	0.000	13.889	13.889
Hardware Development	WR	NSWC : CORONA, CA	0.357	0.260	Feb 2021	0.100	Nov 2021	0.107	Nov 2022	-		0.107	Continuing	Continuing	Continuing
Hardware Development	C/CPFF	ATI : Summerville, SC	0.150	0.000		0.000		0.000		-		0.000	0.000	0.150	0.150
Software Development	WR	NUWC : NEWPORT, RI	1.283	0.984	Dec 2020	0.584	Nov 2021	0.963	Nov 2022	-		0.963	Continuing	Continuing	Continuing
Software Development	C/CPFF	JACOBS ENG : RIDGECREST, CA	5.641	0.291	Jun 2021	0.200	Nov 2021	1.071	Nov 2022	-		1.071	0.000	7.203	7.203
Software Development	WR	NAWC-AD : PAX RIVER, MD	10.813	0.883	Dec 2020	0.500	Nov 2021	0.391	Nov 2022	-		0.391	Continuing	Continuing	Continuing
Software Development	WR	NSWC : CORONA, CA	0.458	0.000		0.000		0.000		-		0.000	0.000	0.458	0.458
Software Development	WR	NAWC-WD : POINT MUGU, CA	0.375	0.000		0.000		0.000		-		0.000	0.000	0.375	0.375
Prior Year Prod Dev No Longer Funded in the FYDP	Various	Various : Various	100.705	0.000		0.000		0.000		-		0.000	0.000	100.705	100.705
		Subtotal	133.671	2.418		1.384		2.532		-		2.532	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC-AD : PAX RIVER, MD	2.177	0.262	Dec 2020	0.262	Nov 2021	0.136	Nov 2022	-		0.136	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWC-WD : CHINA LAKE, CA	2.425	0.826	Dec 2020	0.800	Nov 2021	0.712	Nov 2022	-		0.712	0.000	4.763	4.763
Systems Engineering	WR	NSWC : CORONA, CA	1.231	0.000		0.000		0.000		-		0.000	0.000	1.231	1.231
Systems Engineering	WR	GSA : Washington, DC	0.124	0.000		0.000		0.000		-		0.000	0.000	0.124	0.124

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
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 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Support No Longer Funded in the FYDP	Various	Various : Various	10.926	0.000		0.000		0.000		-		0.000	0.000	10.926	10.926
		Subtotal	16.883	1.088		1.062		0.848		-		0.848	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 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	0.000		0.000		0.000		-		0.000	0.000	5.299	5.299
		Subtotal	5.299	0.000		0.000		0.000		-		0.000	0.000	5.299	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Support No Longer Funded in the FYDP	Various	Various : Various	3.739	0.000		0.000		0.000		-		0.000	0.000	3.739	3.739
		Subtotal	3.739	0.000		0.000		0.000		-		0.000	0.000	3.739	N/A

	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	159.592	3.506		2.446		3.380		-		3.380	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
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*

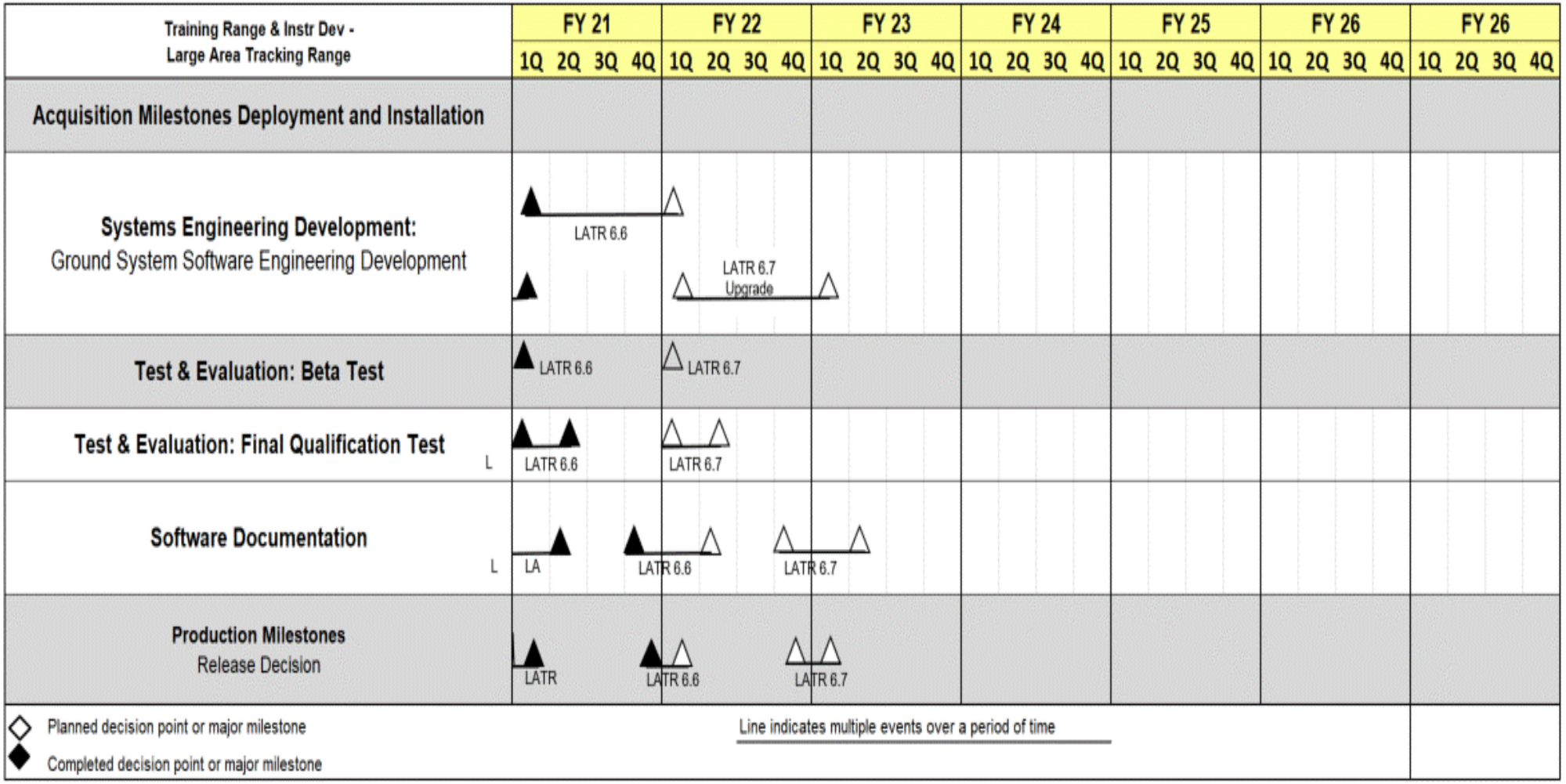

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

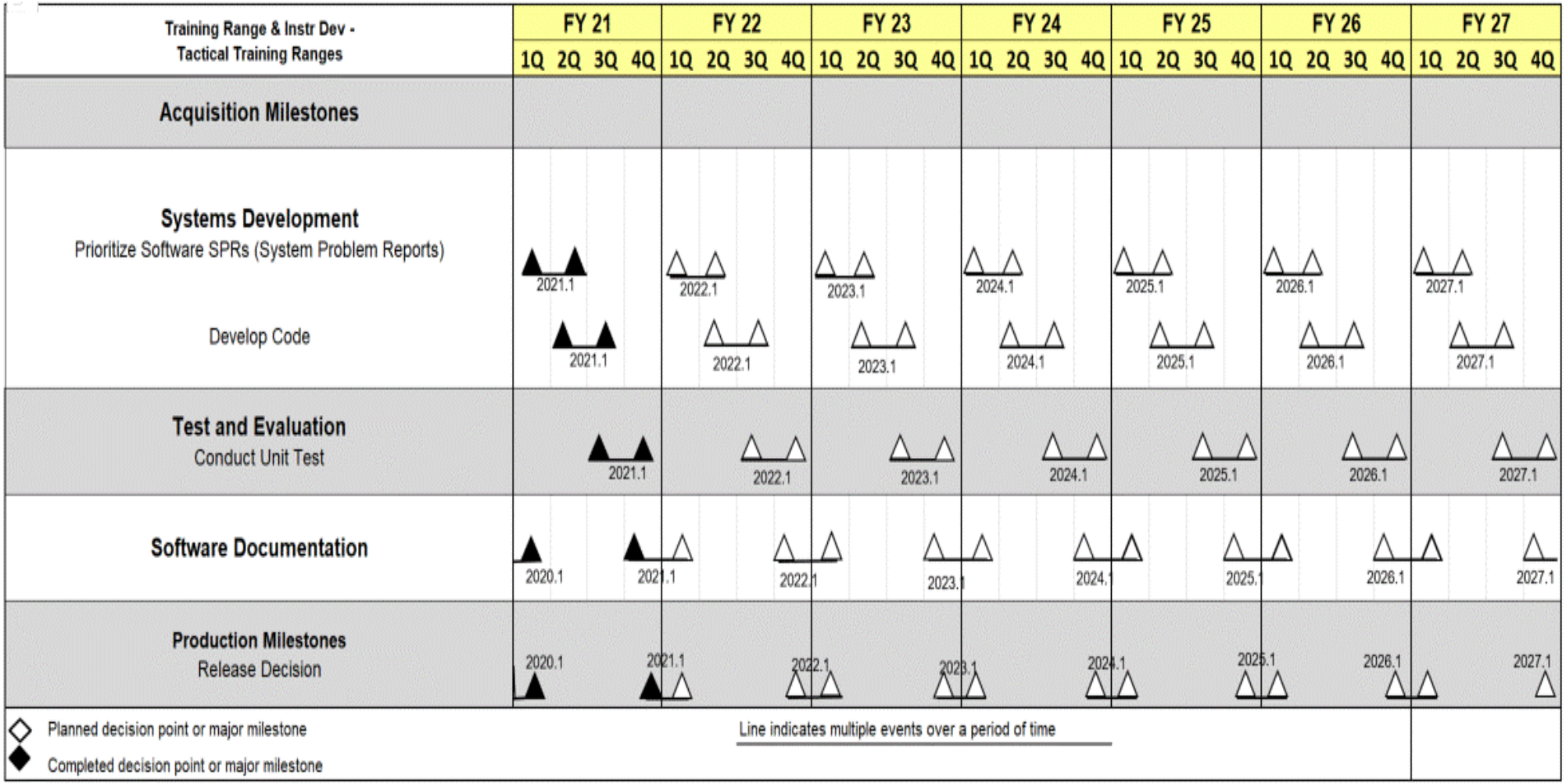

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

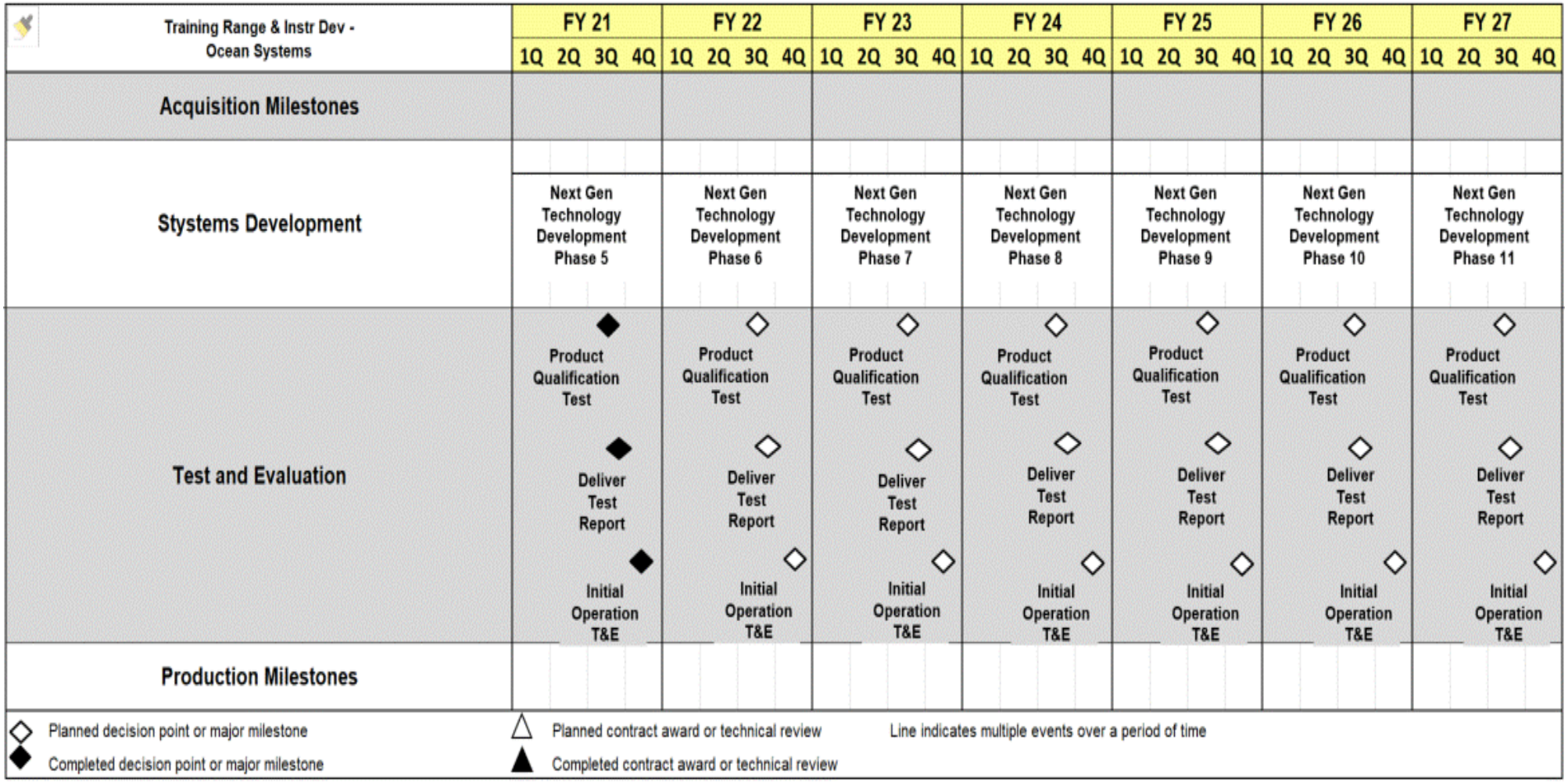

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Training Range & Instr Dev - Large Area Tracking Range				
System Development: LATR - 6.5 Software Engineering Development	1	2021	1	2021
System Development: LATR - 6.6 Software Engineering Development	1	2021	1	2022
System Development: LATR - 6.7 Software Engineering Development	1	2022	1	2023
Test & Evaluation: Beta Testing: LATR - 6.6 Beta Test	1	2021	1	2021
Test & Evaluation: Beta Testing: LATR - 6.7 Beta Test	1	2022	1	2022
Test & Evaluation: Final Qualification Test: LATR - 6.6 Final Qualification Test	1	2021	2	2021
Test & Evaluation: Final Qualification Test: LATR - 6.7 Final Qualification Test	1	2022	2	2022
Production Milestones: Software Documentation: LATR - 6.5	1	2021	2	2021
Production Milestones: Software Documentation: LATR - 6.6	4	2021	2	2022
Production Milestones: Software Documentation: LATR - 6.7	4	2022	2	2023
Production Milestones: Release Decision: LATR - 6.5	1	2021	1	2021
Production Milestones: Release Decision: LATR - 6.6	4	2021	1	2022
Production Milestones: Release Decision: LATR - 6.7	4	2022	1	2023
Training Range & Instr Dev - Tactical Training Ranges				
Acquisition Milestones: Prioritize Software System Problem Reports (SPRs): TTR - 2021.1	1	2021	2	2021
Acquisition Milestones: Prioritize Software System Problem Reports (SPRs): TTR - 2022.1	1	2022	2	2022
Acquisition Milestones: Prioritize Software System Problem Reports (SPRs): TTR - 2023.1	1	2023	2	2023
Acquisition Milestones: Prioritize Software System Problem Reports (SPRs): TTR - 2024.1	1	2024	2	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
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**
Acquisition Milestones: Prioritize Software System Problem Reports (SPRs): TTR - 2025.1	1	2025	2	2025
Acquisition Milestones: Prioritize Software System Problem Reports (SPRs): TTR - 2026.1	1	2026	2	2026
Acquisition Milestones: Prioritize Software System Problem Reports (SPRs): TTR - 2027.1	1	2027	2	2027
Acquisition Milestones: Develop Code: TTR - 2021.1	2	2021	3	2021
Acquisition Milestones: Develop Code: TTR - 2022.1	2	2022	3	2022
Acquisition Milestones: Develop Code: TTR - 2023.1	2	2023	3	2023
Acquisition Milestones: Develop Code: TTR - 2024.1	2	2024	3	2024
Acquisition Milestones: Develop Code: TTR - 2025.1	2	2025	3	2025
Acquisition Milestones: Develop Code: TTR - 2026.1	2	2026	3	2026
Acquisition Milestones: Develop Code: TTR - 2027.1	2	2027	3	2027
Test & Evaluation: Conduct Unit Test: TTR - 2021.1	3	2021	4	2021
Test & Evaluation: Conduct Unit Test: TTR - 2022.1	3	2022	4	2022
Test & Evaluation: Conduct Unit Test: TTR - 2023.1	3	2023	4	2023
Test & Evaluation: Conduct Unit Test: TTR - 2024.1	3	2024	4	2024
Test & Evaluation: Conduct Unit Test: TTR - 2025.1	3	2025	4	2025
Test & Evaluation: Conduct Unit Test: TTR - 2026.1	3	2026	4	2026
Test & Evaluation: Conduct Unit Test: TTR - 2027.1	3	2027	4	2027
Production Milestones: Software Documentation: TTR - 2020.1	1	2021	1	2021
Production Milestones: Software Documentation: TTR - 2021.1	4	2021	1	2022
Production Milestones: Software Documentation: TTR - 2022.1	4	2022	1	2023
Production Milestones: Software Documentation: TTR - 2023.1	4	2023	1	2024
Production Milestones: Software Documentation: TTR - 2024.1	4	2024	1	2025
Production Milestones: Software Documentation: TTR - 2025.1	4	2025	1	2026
Production Milestones: Software Documentation: TTR - 2026.1	4	2026	1	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
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: Software Documentation: TTR - 2027.1	4	2027	4	2027
Production Milestones: Release Decision: TTR - 2020.1	1	2021	1	2021
Production Milestones: Release Decision: TTR - 2021.1	4	2021	1	2022
Production Milestones: Release Decision: TTR - 2022.1	4	2022	1	2023
Production Milestones: Release Decision: TTR - 2023.1	4	2023	1	2024
Production Milestones: Release Decision: TTR - 2024.1	4	2024	1	2025
Production Milestones: Release Decision: TTR - 2025.1	4	2025	1	2026
Production Milestones: Release Decision: TTR - 2026.1	4	2026	1	2027
Production Milestones: Release Decision: TTR - 2027.1	4	2027	4	2027
Ocean Systems				
System Development: Next Gen Technology Development Phase 5	1	2021	4	2021
System Development: Next Gen Technology Development Phase 6	1	2022	4	2022
System Development: Next Gen Technology Development Phase 7	1	2023	4	2023
System Development: Next Gen Technology Development Phase 8	1	2024	4	2024
System Development: Next Gen Technology Development Phase 9	1	2025	4	2025
System Development: Next Gen Technology Development Phase 10	1	2026	4	2026
System Development: Next Gen Technology Development Phase 11	1	2027	4	2027
Test & Evaluation: Product Qualification Test: Phase 5	3	2021	3	2021
Test & Evaluation: Product Qualification Test: Phase 6	3	2022	3	2022
Test & Evaluation: Product Qualification Test: Phase 7	3	2023	3	2023
Test & Evaluation: Product Qualification Test: Phase 8	3	2024	3	2024
Test & Evaluation: Product Qualification Test: Phase 9	3	2025	3	2025
Test & Evaluation: Product Qualification Test: Phase 10	3	2026	3	2026
Test & Evaluation: Product Qualification Test: Phase 11	3	2027	3	2027
Test & Evaluation: Deliver Test Report: Phase 5	3	2021	3	2021
Test & Evaluation: Deliver Test Report: Phase 6	3	2022	3	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
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**
Test & Evaluation: Deliver Test Report: Phase 7	3	2023	3	2023
Test & Evaluation: Deliver Test Report: Phase 8	3	2024	3	2024
Test & Evaluation: Deliver Test Report: Phase 9	3	2025	3	2025
Test & Evaluation: Deliver Test Report: Phase 10	3	2026	3	2026
Test & Evaluation: Deliver Test Report: Phase 11	3	2027	3	2027
Test & Evaluation: Initial Operation T&E: Phase 5	4	2021	4	2021
Test & Evaluation: Initial Operation T&E: Phase 6	4	2022	4	2022
Test & Evaluation: Initial Operation T&E: Phase 7	4	2023	4	2023
Test & Evaluation: Initial Operation T&E: Phase 8	4	2024	4	2024
Test & Evaluation: Initial Operation T&E: Phase 9	4	2025	4	2025
Test & Evaluation: Initial Operation T&E: Phase 10	4	2026	4	2026
Test & Evaluation: Initial Operation T&E: Phase 11	4	2027	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy											Date: April 2022	
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 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
1427: *Surface Tactical Team Trainer (STTT)*	239.745	38.974	30.744	13.721	-	13.721	17.334	16.298	15.757	15.965	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Department's submission reflects the results of a deep dive into Fleet Training Wholeness (FTW) and how to provide a means for Strike Group Training in a contested environment, in accordance with Chief of Naval Operations guidance and Fleet Training Wholeness 2025 objectives. The analysis determined the most cost effective means to provide this training is via a combination of Live Virtual Constructive (LVC) capabilities. The department of the Navy has identified 21 LVC Capabilities that began in FY19 leveraging combat system product line architecture components, contract vehicles, warfare center subject matter experts, and engineering practices for iterative development. The deep dive identified that there is no other cost effective way to train in a contested environment. The foundation for LVC has already been established and will continue to execute the investment strategy to provide initial underway LVC capability to train Strike Group(s) in an environment that they expect to fight in. The development, integration and testing of LVC's, along with ensuring interoperability with surface and air communities, will be accomplished across Integrated Warfare Systems (IWS), Navy Continuous Training Environment (NCTE), and the Navy's Tactical Training Network.

Surface Tactical Team Trainer (STTT) develops modifications during sustainment of Battle Force Tactical Training (BFTT) system and modernization into the Advanced Training Domain (ATD). Both BFTT and ATD are the core system that is used to integrate the weapon system elements, and combat system components to create the Total Ship Training Capability (TSTC). BFTT and ATD continue to integrate and update, as new tactical capabilities are being introduced, to enable crew operator proficiency training for basic and sustainment level training events, through distributed strike group certification fleet synthetic training (FST) events and including Composite Training Unit Exercise (COMPTUEX) FST underway LVC events. Continued Development is required to integrate new capabilities and interfaces to provide training for AEGIS and Ships Self Defense System (SSDS) combat system capability upgrades, and to address the Fleet's LVC FTW initiative. Additionally, modernization is needed to support the Department of Defense (DoD) Training Transformation Plan, the Chief of Naval Operations Fleet Response Plan and Commander United States Fleet Forces Command Fleet Readiness Training Plan.

The Advanced Training Domain (ATD) is being developed to combine BFTT and the AEGIS Combat Training System (ACTS) into a common system that integrates with AEGIS Base Line (BL) 9.2.2 And Follow (AF), and Ships Self Defense System (SSDS) BL 12.xAF. ATD is being hosted along with the AEGIS and SSDS combat system on Technical Insertion TI-12H & TI-16 common processing and display hardware. ATD is being designed to be the core of the Total Ship Training Capability, and is projected to be more reliable, simpler to use, and architecturally extensible to meet interoperability and capability enhancement challenges in the future.

The ATD is undergoing transformation to align with various virtualization and modernization efforts being accomplished within the surface combat systems. ATD is being augmented through the development and adaptation of high fidelity simulations used in the Combined Integrated Air and Missile Defense (IAMD) Anti-Submarine Warfare (ASW) Trainer (CIAT), for the purposes of providing high fidelity, LVC training capability that represents the high end fight in a contested environment. These enhancements will align to the combat systems virtualization efforts to provide the required training capability to the ships. This effort has been referred to as CIAT to SEA/Internal Training Domain (ITD).

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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The BFTT and ATD are being updated to maintain integration and capability enhancements developed for the Cooperative Engagement Capability (CEC), Surface Electronic Warfare Improvement Program (SEWIP), Carrier Tactical Support Center (CV-TSC), and SSDS Fire Control Loop Improvement Program.

TSTC provides realistic joint warfare training across the spectrum of armed conflict, realistic unit level team training in all warfare areas (e.g. Naval Integrated Fire Control - Counter Air (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 FST/LVC events.

Continue development and integration of MH-60R simulator to enable single ship basic and sustainment training, and distributed multi-ship pier-side Fleet Synthetic Training (FST) events. Changes align to tactical updates.

Continue development and integration of Cooperative Engagement Capability (CEC) Enhanced Training (CET) to enable single ship basic and sustainment training, and distributed multi-ship pier-side FST events. CET is an enabler for proficiency training of NIFC-CA capability. Changes align to tactical updates.

Complete development and integration of upgrades to Battleforce Electronic Warfare Trainer (BEWT) to support soft kill training with NULKA Decoys capability upgrades to AN/SLQ-32 Electronic Warfare System, in the areas of Softkill and Electronic Attack.

Complete development of Identification Friend or Foe (IFF) simulator to enable training of Modes 1, 2, 3A, 4, C, 5 and S on both AEGIS and SSDS ships. Capability will enable training of AEGIS and SSDS IFF MODE 5/S and address Mode 4 Inoculation.

Continue development to integrate commensurate training improvements to Ships Self Defense System in support of Enhanced Sea Sparrow Missile (ESSM) and Electronic Warfare (EW) tactical improvements.

Continue development and integration of Navy Continuous Training Environment (NCTE) networking and cyber security upgrades.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Surface Tactical Team Trainer (STTT)	11.897	11.926	9.056	0.000	9.056
Articles:	-	-	-	-	-
FY 2022 Plans: Complete ATD 1.0 and 1.1 integration, testing and delivery to AEGIS BL 9.2.2/CP22-1 and SSDS BL 12.0. Continue integration and test of 1.1.1, 1.2, and 1.3 with SSDS BL 12.x, AEGIS BL 9.2.x, and AEGIS BL 10.x respectively. Continue development of capabilities to align to AEGIS and SSDS combat system, above water sensor systems, Surface Warfare and Anti-Submarine Warfare Systems. This will include development updates for Advance					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Training Domain on ships outfitted with Technical Insertion 12 Hybrid, and 16 (TI-12H/TI-16). BFTT will continue updates to maintain alignment to modernization of other shipboard systems. Continue the test and integration of the Advanced Off-board Electronic Warfare (AOEW) training capability within the Battle-force Electronic Warfare Trainer (BEWT), and Surface Electronic Warfare Team Trainer (SEWTT). Continue development of improvements to gain efficiencies in the transitioning in and out of training mode on the ships, freeing up more time for training, while reducing technical assistance. Begin to transition Fleet Training Wholeness products into ATD / BFTT for integration and testing. ***FY 2023 Base Plans:*** Complete Integration and Delivery of ATD 1.1.1 with SSDS BL 12.12 (CP 1), and ATD 1.2.1 with SSDS BL 12.13.03 (CP 2). Continue development, integration and testing ATD 1.3 with AEGIS BL 10. Continue development and integration of ATD to incorporate training capabilities to support AEGIS and SSDS tactical capability updates. Continue developing and delivering threat data base updates to enable ships crews to train to relevant near-peer threats. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 $2.870M decrease due to a scaling back of Battle Force Tactical Training (BFTT) development.					
Title: Fleet Training Wholeness	19.302	14.818	4.665	0.000	4.665
Articles:	-	-	-	-	-
FY 2022 Plans: Continue development, integration and testing of the Strike Group CEC Underway Training Capability. Continue development of simulation over live upgrades to shipboard above water sensor systems. Finalize the technical Data Package and continue development, shipboard testing and certification of the Virtual Tactical Bridge embarked Shipboard Radio (VTBeSR) product integrated into BFTT and ATD to meet LVC training requirements in support of Fleet Training wholeness.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continue development of integrated combat system data collection and after-action review capability that will provide an effective means for instructors to assess crew performance. Continue development of Simulation over Live capabilities into the shipboard sensor systems. ***FY 2023 Base Plans:*** Continue development of integrated combat system data collection and after-action review products that will provide an effective means for instructors to assess crew performance. Complete Integration and testing of Strike Group CEC Underway Training Capability on AEGIS and SSDS ships. Fleet introduction of this capability begins in FY23. Complete Integration and testing of VTBeSR on AEGIS and SSDS ships. Complete Integration and testing of Simulation over Live capabilities implemented into shipboards sensor systems. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 $10.153M decrease due to completion of various simulation over live projects including VTBeSR and budget realities.					
Title: DDG 1000 Wholeness/Surface Strike	1.575	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2022 Plans: Project completed. ***FY 2023 Base Plans:*** Project completed. ***FY 2023 OCO Plans:*** N/A					
Title: CIAT TO SEA/ITD	6.200	4.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2022 Plans:					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continue engineering efforts to integrate the higher fidelity Combined Integrated Air and Missile (IAMD) and Anti-Submarine Warfare (ASW) Trainer (CIAT) capabilities into the AEGIS shipboard systems. Conduct Design / Software Incremental Reviews for ATD 2.0 (CIAT to SEA/ITD) follow-on design, and continue to develop concept demonstrations and begin development of engineering development model (EDM) to reduce development and integration risks. CIAT to SEA/ITD will be rolled in under ATD as the next developed system that aligns to combat systems virtualization efforts. ***FY 2023 Base Plans:*** Completed engineering of ATD 2.0 (CIAT to Sea/ITD) ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 $4.000M decrease reflects completion of engineering of ATD 2.0 (CIAT to SEA/ITD).					
Accomplishments/Planned Programs Subtotals	38.974	30.744	13.721	0.000	13.721

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• RDTE/0604307N/3357: *Aegis Training Improvement Program*	8.560	7.018	6.379	-	6.379	5.605	5.227	5.257	5.345	Continuing	Continuing
• RDTE/0604755N/3358: *SSDS Training Improvement Program*	8.745	12.421	10.204	-	10.204	9.615	9.408	9.233	9.332	Continuing	Continuing
• OPN/5664/MB040/MB5IN: *Other Training Equipment (Surface BFTT/ TSTC portion only) New BLI FY17*	59.337	30.283	71.434	-	71.434	53.775	37.903	38.043	38.809	Continuing	Continuing

Remarks

D. Acquisition Strategy

The BFTT acquisition strategy for system development utilizes the Advanced Capability Build (ACB) development model, as mandated by the Office of the Chief of Naval Operations (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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
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 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/FFP	GTS : Virginia Beach, VA	17.228	0.600	Dec 2020	0.610	Dec 2021	0.620	Dec 2022	-		0.620	Continuing	Continuing	Continuing
Systems Engineering	WR	SEA02/NSWC Dam Neck/NSWC Dahlgren : NAVSEA/ Dam Neck/NSWC Dahlgren	75.747	20.704	Dec 2020	14.600	Dec 2021	6.516	Dec 2022	-		6.516	Continuing	Continuing	Continuing
Software Development	WR	NSWC Dam Neck/ SEA 02 : WR/REQN	101.547	13.095	Dec 2020	11.261	Dec 2021	4.585	Dec 2022	-		4.585	0.000	130.488	-
		Subtotal	194.522	34.399		26.471		11.721		-		11.721	Continuing	Continuing	N/A

Remarks

Software development moved into Product Development section.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Dam Neck/ SEA 02 : WR/REQN	28.666	2.845	Dec 2020	3.073	Dec 2021	1.000	Dec 2022	-		1.000	Continuing	Continuing	Continuing
		Subtotal	28.666	2.845		3.073		1.000		-		1.000	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NSWC Dam Neck/ SEA02 : WR/REQN	16.557	1.730	Dec 2020	1.200	Dec 2021	1.000	Dec 2022	-		1.000	Continuing	Continuing	Continuing
		Subtotal	16.557	1.730		1.200		1.000		-		1.000	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
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	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	239.745	38.974		30.744		13.721		-		13.721	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
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)*

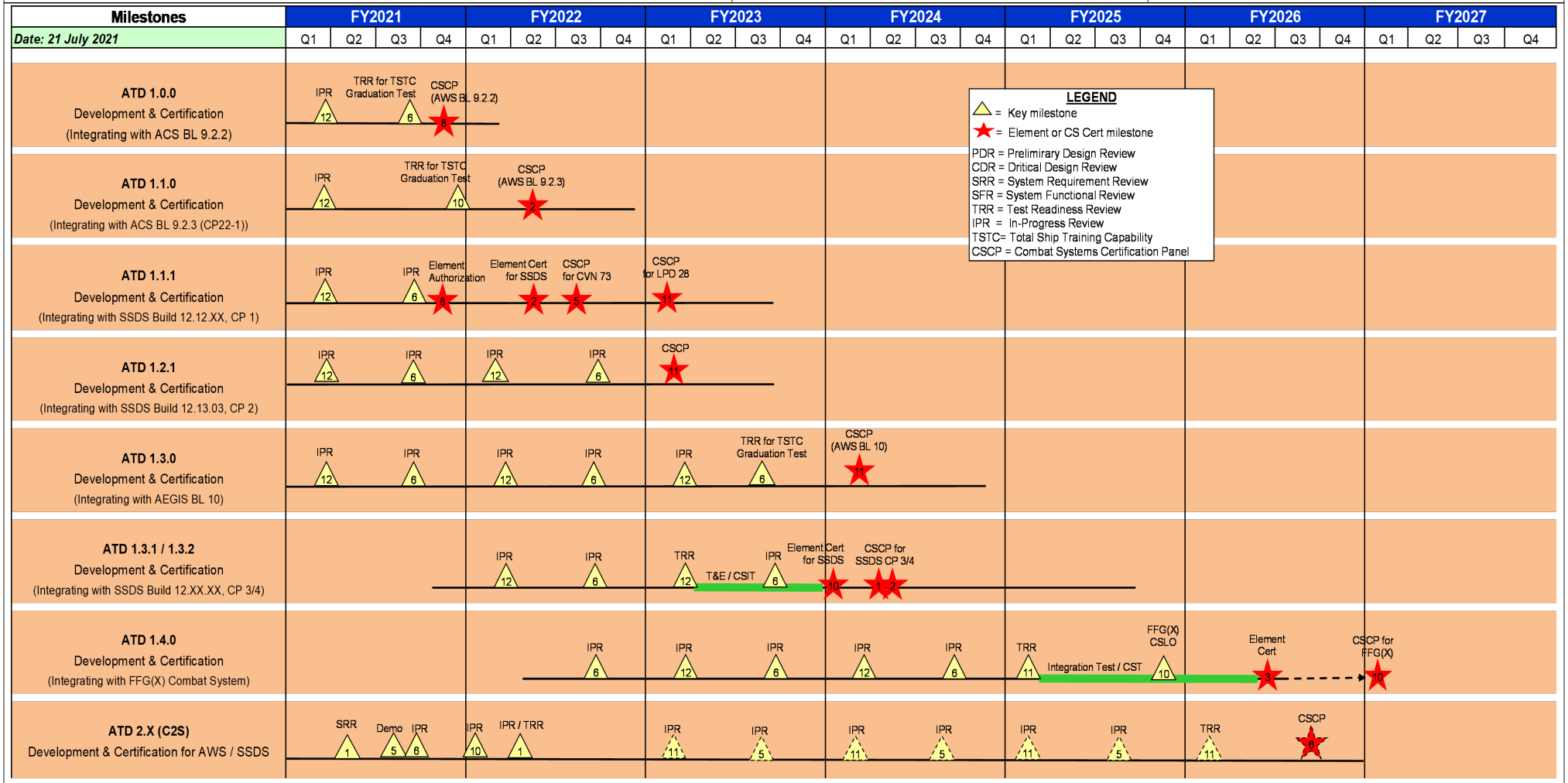

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1427				
ATD 1.0 IPR #1	1	2021	1	2021
ATD 1.0 TRR for TSTC Graduation Test	3	2021	3	2021
ATD 1.0 CSCP AWS BL 9.2.2	4	2021	4	2021
ATD 1.1.0 IPR #1	1	2021	1	2021
ATD 1.1.0 TRR for TSTC Graduation Test	4	2021	4	2021
ATD 1.1.0 CSCP	2	2022	2	2022
ATD 1.1.1 IPR #1	1	2021	1	2021
ATD 1.1.1 IPR #2	3	2021	3	2021
ATD 1.1.1 Element Cert Authorization	4	2021	4	2021
ATD 1.1.1 Element Cert for SSDS	2	2022	2	2022
ATD 1.1.1 CSCP for SSDS (CVN 73)	3	2022	3	2022
ATD 1.1.1 CSCP for SSDS (LPD 28)	1	2023	1	2023
ATD 1.2.1 IPR #1	1	2021	1	2021
ATD 1.2.1 IPR #2	3	2021	3	2021
ATD 1.2.1 IPR #3	1	2022	1	2022
ATD 1.2.1 IPR #4	3	2022	3	2022
ATD 1.2.1 CSCP	1	2023	1	2023
ATD 1.3.0 IPR #1 for AWS BL10	1	2021	1	2021
ATD 1.3.0 IPR #2 for AWS BL10	3	2021	3	2021
ATD 1.3.0 IPR #3 for AWS BL10	1	2022	1	2022
ATD 1.3.0 IPR #4 for AWS BL10	3	2022	3	2022
ATD 1.3.0 IPR #5 for AWS BL10	1	2023	1	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ATD 1.3.0 TRR for AWS BL10	3	2023	3	2023
ATD 1.3.0 CSCP for AWS BL10	1	2024	1	2024
ATD 1.3.1 /1.3.2 IPR #1	1	2022	1	2022
ATD 1.3.1 /1.3.2 IPR #2	3	2022	3	2022
ATD 1.3.1 / 1.3.2 TRR	1	2023	1	2023
ATD 1.3.1 / 1.3.2 T&E / CSIT	1	2023	4	2023
ATD 1.3.1 /1.3.2 IPR #3	3	2023	3	2023
ATD 1.3.1 / 1.3.2 Element Cert for SSDS	1	2024	1	2024
ATD 1.3.1 /1.3.2 CSCP for SSDS CP 3/4	2	2024	2	2024
ATD 1.4.0 IPR #1	3	2022	3	2022
ATD 1.4.0 IPR #2	1	2023	1	2023
ATD 1.4.0 IPR #3	3	2023	3	2023
ATD 1.4.0 IPR #4	1	2024	1	2024
ATD 1.4.0 IPR #5	3	2024	3	2024
ATD 1.4.0 TRR	1	2025	1	2025
ATD 1.4.0 Integration Test / CST	1	2025	2	2026
ATD 1.4.0 FFG(X) CSLO	4	2025	4	2025
ATD 1.4.0 Element Cert	2	2026	2	2026
ATD 1.4.0 CSCP for FFG(X)	1	2027	1	2027
ATD 2.X (C2S) SRR	2	2021	2	2021
ATD 2.X (C2S) Demo	3	2021	3	2021
ATD 2.X (C2S) IPR #1	3	2021	3	2021
ATD 2.X (C2S) IPR #2	1	2022	1	2022
ATD 2.X (C2S) IPR #3 / TRR	2	2022	2	2022
ATD 2.X (C2S) IPR #4	1	2023	1	2023
ATD 2.X (C2S) IPR #5	3	2023	3	2023

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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ATD 2.X (C2S) IPR #6	1	2024	1	2024
ATD 2.X (C2S) IPR #7	3	2024	3	2024
ATD 2.X (C2S) IPR #8	1	2025	1	2025
ATD 2.X (C2S) IPR #9	3	2025	3	2025
ATD 2.X (C2S) TRR	1	2026	1	2026
ATD 2.X (C2S) CSCP	3	2026	3	2026

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
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COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
2124: *Air Warfare Training*	53.807	1.455	1.606	1.754	-	1.754	1.723	1.742	1.772	1.799	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 PMA-205 Strategic 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 capabilities 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, 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, Augmented Reality (AR), Virtual Reality (VR) and Mixed Reality (MR) technology, NAVAIR Portable Source Initiative improvements, common correlated data set technologies and heterogeneous data fusion, 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 and simulator sickness research, communications 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: HUMAN/INSTRUCTIONAL SYSTEMS INTEGRATION	0.715	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Develop common After Action Review (AAR) and platform-unique post mission assessment, Intelligent Tactical SAF, and high fidelity simulator component technologies to include AR/VR/MR HMD technologies. After Action Review (AAR), and high fidelity components such as Intelligent SAF designs lower Navy Aviation Simulation Master Plan (NASMP) upgrade and simulator life-cycle costs. Integrate Voice-Capable semi-automated forces (SAF) component 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 & United States Marine Corps mission areas, intelligent instructor operator components, automated					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
performance measurement technologies, Tactical Aircraft/ Multi-Mission Maritime Aircraft/ Reduced Oxygen Breathing Device-Spatial Disorientation technologies/devices common graphic user interface initiatives, common threat system formats, Next Generation Threat System (NGTS) technology transitions, Joint Semi-Automated Forces (JSAF) compatibility, cross platform post mission performance measurement, Multi-purpose Reconfigurable Maintenance Training Systems, (MRTS) and after action review/debrief innovations, thereby maximizing return on investment for instructional systems technology investments. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A					
Title: SENSORS AND ENVIRONMENT ***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 (GOTS) Software. Perform risk reduction, advanced displays innovation, test and evaluation, integration, and production of Common Sensor Model, High Fidelity Active-Acoustics Sensor Operator Training, 3D Ocean effects, Anti-Submarine Warfare (ASW) acoustic fidelity assessments, 3D weather effects, 3D Ocean acoustic modeling, new Reduced Oxygen Breathing Device (ROBD)& Spatial Disorientation (SD), and legacy device technologies. Demonstrate GOTS capability for cost-effective database materialization, Material Properties Reference Dataset library, associated NAVAIR Portable Source Initiative specifications and processes for implementation on Distributed Mission Training, deployed trainers, legacy, and new visual system upgrade programs to include Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR). 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 2022 Plans:***	0.240 -	0.000 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A					
Title: LIVE, VIRTUAL, and CONSTRUCTIVE (LVC), AND VISUALS ***Articles:*** ***Description:*** Air Warfare Training Development provides for risk mitigation and next generation platform, Unmanned Aerial Systems, Live, Virtual, and Constructive (LVC) and associated visualization component development for Navy aviation distributed mission training, and distributed training centers (NADTC), as well as for stand-alone and small footprint deployable devices. Provided integrated capability assessment for Ranges, Experimentation products, and Training. 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 Live Virtual Constructive (LVC), Unmanned Aerial Systems (UAS) constructive and associated debrief/After Action Review (AAR) visualization component technologies. Additionally, Air Warfare Training Development (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)). 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 2022 Plans:*** N/A ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A	0.500 -	0.000 -	0.000 -	0.000 -	0.000 -
Title: AIR WARFARE TRAINING DEVELOPMENT ***Articles:*** ***Description:*** Provide risk mitigation, test and evaluation, and prototype development for stand-alone, manned, un-manned, distributed, open systems and deployed training systems focused on addressing highest priority	0.000 -	1.606 -	1.754 -	0.000 -	1.754 -

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
PMA-205 and Director, Air Warfare, Office of the Chief of Naval Operations (OPNAV N98) needs in the area of operational systems development. Develop advanced training and emerging technology prototypes for Navy and Marine Corps Training Systems that address the four key PMA-205 focus areas: Fidelity and scalability, Readiness, Analytics, and Live, Virtual, Constructive (LVC), to transition advanced component technologies to the Fleet. Develop and integrate emerging technologies, such as Extended Reality (XR) to improve training fidelity, reduce training costs, or increase access to training at the point of need. Develop and integrate emerging technologies and methods to enhance warfighter readiness and performance to reduce time to train, lower training costs, and reduce the number of human factors related hazreps and mishaps. Develop data analytic improvements to the way the Navy captures data, measures performance, performs after action review, and conducts assessment. Develop LVC technologies to support integrated mission training to support the high-end fight.					
FY 2022 Plans: Complete analysis and reporting tool for synthetic entity systems (e.g. NGTS, JSAF). Complete haptic feedback capability to support AR/VR/MR interaction. Continue development of heterogenous data fusion capability to support intelligent, semi-automated performance measurement and debrief capability in support of Live, Virtual, and Constructive (LVC) training environments. Conduct evaluation of TH-57 Virtual Reality display technologies. Continue analytical and developmental support for emergent programs of record in Live, Virtual and Constructive (LVC), cross domain solution, integrated warfare, acoustic simulation environments, warfighter performance assessment and training analytics, threat system enhancements, and sensor/ visualization modeling. Continue to integrate expandable flight deck crew trainer with Virtual Wingman capability based on Commercial off the Shelf (COTS) virtual and augmented reality technology. Complete Collaborative Database Rapid Terrain Generation Phase 2 which delivers enhanced terrain recognition capability. Continue development of tests and metrics to evaluate performance and utility of Mixed Reality training devices (i.e., HMD that integrates virtual world with real world).					
FY 2023 Base Plans: Complete Fleet Adaptive Multi-Level Measurement for LVC. Continue development of heterogenous data fusion capability to support intelligent, semi-automated performance measurement and debrief capability in support of Live, Virtual and Constructive (LVC) training environments. Continue to conduct evaluation of TH-57 Virtual Reality display technologies. Continue analytical and developmental support for emergent programs of record in Live, Virtual and Constructive (LVC), cross domain solution, integrated warfare, acoustic simulation environments, warfighter performance assessment and training analytics, threat system enhancements, and sensor/ visualization modeling. Continue to integrate expandable flight deck crew trainer with Virtual Wingman					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
capability based on Commercial off the Shelf (COTS) virtual and augmented reality technology. Continue development of tests and metrics to evaluate performance and utility of Mixed Reality training devices (i.e., HMD that integrates virtual world with real world). ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 $0.148M increase reflects increase in software development capabilities for Live, Virtual, and Constructive (LVC) training visual improvements and training analytics.					
Accomplishments/Planned Programs Subtotals	1.455	1.606	1.754	0.000	1.754

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APN/0705: *COMMON GROUND EQUIPMENT - TRAINING*	276.566	232.135	300.220	-	300.220	290.916	269.843	289.661	298.914	Continuing	Continuing

Remarks

Includes APN BLI 0705 PE 0804731N General Skills Training and PE 0804743N Other Flight Training

D. Acquisition Strategy

Air Warfare Training Development (AWTD) is a BA 07 RDT&E joint technology transition program tied to the PMA-205 Strategic Plan, Navy Aviation Simulation Master Plan (NASMP), United States Marine Corps 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
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 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPFF	Bohemia Interactive : ORLANDO, FL	0.832	0.000		0.000		0.000		-		0.000	0.000	0.832	0.832
Software Development	C/CPFF	Aptima : WOBURN, MA	0.424	0.000		0.000		0.000		-		0.000	0.000	0.424	0.424
Software Development	C/CPFF	SOAR Tech : ORLANDO, FL	0.080	0.115	Mar 2021	0.050	Mar 2022	0.101	Mar 2023	-		0.101	0.000	0.346	0.345
Software Development	WR	NAWCTSD : ORLANDO, FL	26.663	0.519	Nov 2020	0.351	Nov 2021	0.408	Nov 2022	-		0.408	Continuing	Continuing	Continuing
Software Development	WR	NAMRU : SILVER SPRING, MD	0.020	0.025	Feb 2021	0.000		0.000		-		0.000	0.000	0.045	0.045
Software Development	C/CPFF	ACC : ROCK ISLAND, IL	0.000	0.388	Jan 2022	0.000		0.000		-		0.000	0.000	0.388	0.388
Prior Year Prod Dev No Longer Funded in the Budget or Out Years	Various	Various : Various	10.692	0.000		0.000		0.000		-		0.000	0.000	10.692	10.692
		Subtotal	38.711	1.047		0.401		0.509		-		0.509	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCTSD : ORLANDO, FL	0.136	0.050	Nov 2020	0.776	Nov 2021	0.798	Nov 2022	-		0.798	Continuing	Continuing	Continuing
Prior Year Support No Longer Funded in the Budget or Out Years	Various	Various : Various	4.145	0.000		0.000		0.000		-		0.000	0.000	4.145	4.145
		Subtotal	4.281	0.050		0.776		0.798		-		0.798	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 2124 / *Air Warfare Training*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC AD : PAX RIVER, MD	7.588	0.060	Nov 2020	0.139	Nov 2021	0.145	Nov 2022	-		0.145	Continuing	Continuing	Continuing
		Subtotal	7.588	0.060		0.139		0.145		-		0.145	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	Precise : LEXINGTON PARK, MD	0.883	0.175	Mar 2021	0.145	Mar 2022	0.151	Mar 2023	-		0.151	0.000	1.354	1.354
Program Management Support	WR	NAWCTSD : ORLANDO, FL	0.229	0.122	Nov 2020	0.130	Nov 2021	0.136	Nov 2022	-		0.136	Continuing	Continuing	Continuing
Travel	Allot	NAVAIR : PAX RIVER, MD	0.571	0.001	Nov 2020	0.015	Nov 2021	0.015	Nov 2022	-		0.015	Continuing	Continuing	Continuing
Prior year Mgmt Sup no longer funded in the FYDP	Various	Various : Various	1.544	0.000		0.000		0.000		-		0.000	0.000	1.544	1.544
		Subtotal	3.227	0.298		0.290		0.302		-		0.302	Continuing	Continuing	N/A

	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	53.807	1.455		1.606		1.754		-		1.754	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

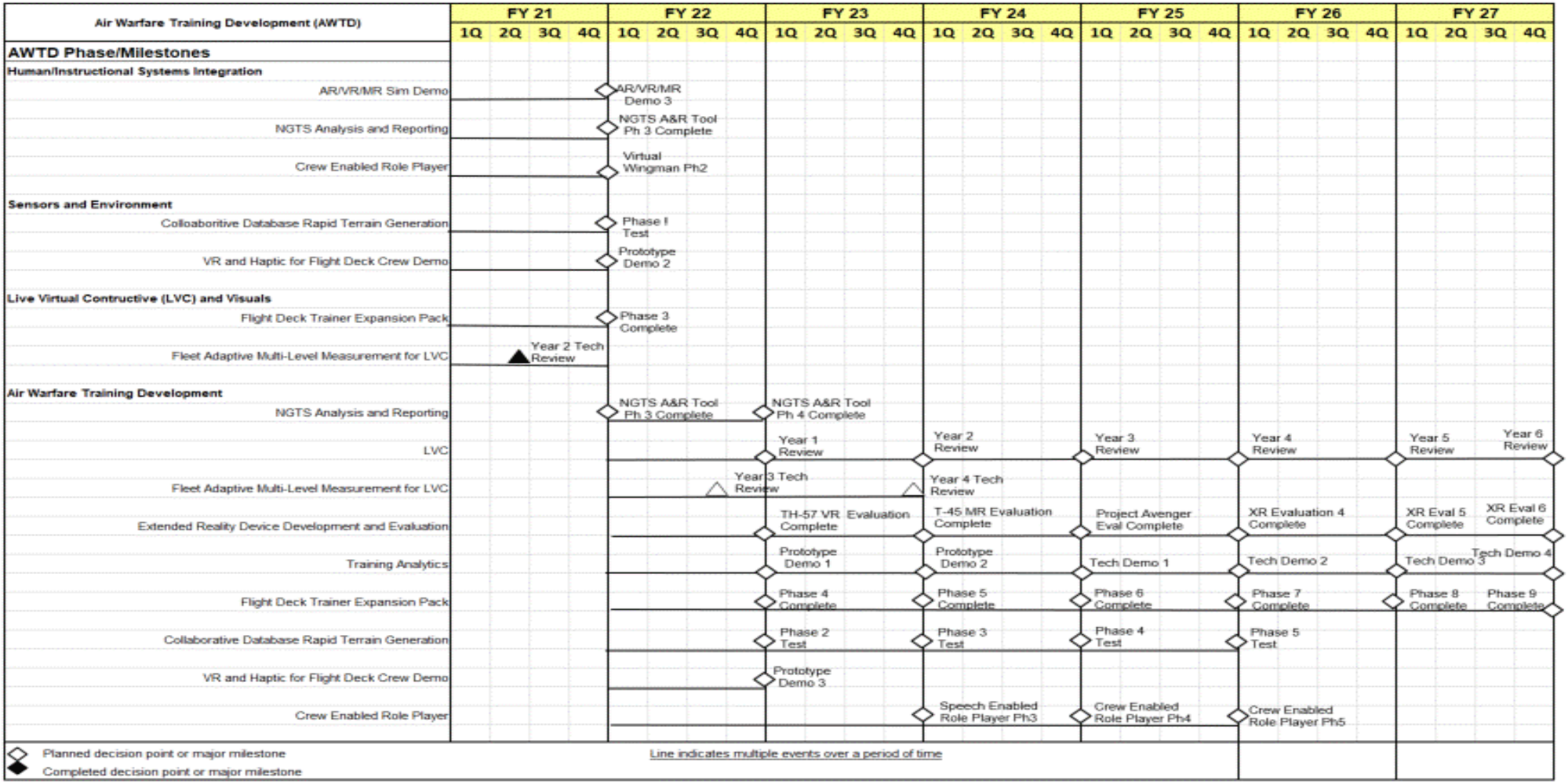

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Air Warfare Training Development				
Systems Development: NGTS Analysis and Reporting	1	2022	4	2022
Systems Development: LVC	1	2022	4	2027
Systems Development: Fleet Adaptive Multi-Level Measurement for LVC	1	2022	4	2023
Systems Development: Extended Reality Device Development and Evaluation	1	2022	4	2027
Systems Development: Training Analytics	1	2022	4	2027
Systems Development: Flight Deck Trainer Expansion Pack	1	2022	4	2027
Systems Development: Collaborative Database Rapid Terrain Generation	1	2022	4	2025
Systems Development: VR and Haptic for Flight Deck Crew Demo	1	2022	4	2022
Systems Development: Crew Enabled Role Player	1	2022	4	2025
Production Milestones: NGTS Analysis and Reporting - Phase 4 Complete	4	2022	4	2022
Production Milestones: LVC Year 1 Review	4	2022	4	2022
Production Milestones: LVC Year 2 Review	4	2023	4	2023
Production Milestones: LVC Year 3 Review	4	2024	4	2024
Production Milestones: LVC Year 4 Review	4	2025	4	2025
Production Milestones: LVC Year 5 Review	4	2026	4	2026
Production Milestones: LVC Year 6 Review	4	2027	4	2027
Production Milestones: Fleet Adaptive Multi-Level Measurement for LVC 4	3	2022	3	2022
Production Milestones: Fleet Adaptive Multi-Level Measurement for LVC 5	4	2023	4	2023
Production Milestones: TH-57 VR Evaluation Complete	4	2022	4	2022
Production Milestones: T-45 MR Evaluation Complete	4	2023	4	2023
Production Milestones: Project Avenger Eval Complete	4	2024	4	2024
Production Milestones: XR Evaluation 4 Complete	4	2025	4	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
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: XR Evaluation 5 Complete	4	2026	4	2026
Production Milestones: XR Evaluation 6 Complete	4	2027	4	2027
Production Milestones: Training Analytics Prototype Demo 1	4	2022	4	2022
Production Milestones: Training Analytics Prototype Demo 2	4	2023	4	2023
Production Milestones: Training Analytics Tech Demo 1	4	2024	4	2024
Production Milestones: Training Analytics Tech Demo 2	4	2025	4	2025
Production Milestones: Training Analytics Tech Demo 3	4	2026	4	2026
Production Milestones: Training Analytics Tech Demo 4	4	2027	4	2027
Production Milestones: Flight Deck Training Expansion Pack - Phase 4	4	2022	4	2022
Production Milestones: Flight Deck Training Expansion Pack - Phase 5	4	2023	4	2023
Production Milestones: Flight Deck Training Expansion Pack - Phase 6	4	2024	4	2024
Production Milestones: Flight Deck Training Expansion Pack - Phase 7	4	2025	4	2025
Production Milestones: Flight Deck Training Expansion Pack - Phase 8	4	2026	4	2026
Production Milestones: Flight Deck Training Expansion Pack - Phase 9	4	2027	4	2027
Production Milestones: VR and Haptic for Flight Deck Crew Prototype Demo 3	4	2022	4	2022
Production Milestones: Speech Enabled Role Player Phase 3	4	2023	4	2023
Production Milestones: Crew Enabled Role Player Phase 4	4	2024	4	2024
Production Milestones: Crew Enabled Role Player Phase 5	4	2025	4	2025
Human/Instructional Systems Integration				
Systems Development: Augmented Reality/ Virtual Reality/ Mixed Reality Sim Demo	1	2021	4	2021
Systems Development: NGTS Analysis and Reporting	1	2021	4	2021
Systems Development: Crew Enabled Role Player	1	2021	4	2021
Production Milestones: AR/VR/MR Sim Demo 3	4	2021	4	2021
Production Milestones: NGTS Analysis and Reporting - Phase 3	4	2021	4	2021
Production Milestones: Crew Enabled Role Player - Virtual Wingman	4	2021	4	2021
Sensors and Environment				

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
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**
Systems Development: Collaborative Database Rapid Terrain Generation	1	2021	4	2021
Systems Development: VR and Haptic for Flight Deck Crew Demo	1	2021	4	2021
Production Milestones: VR and Haptic for Flight Deck Crew Demo 2	4	2021	4	2021
Production Milestones: Collaborative Database Rapid Terrain Generation Phase I	4	2021	4	2021
Live Virtual Constructive (LVC), and Visuals				
Systems Development: Flight Deck Trainer Expansion Pack	1	2021	4	2021
Systems Development: Fleet Adaptive Multi-Level Measurement for LVC	1	2021	4	2021
Production Milestones: Flight Deck Training Expansion Pack - Phase 3	4	2021	4	2021
Production Milestones: Fleet Adaptive Multi-Level Measurement for LVC 3	2	2021	2	2021

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
3093: *TACTS/LATR Replacement*	251.843	22.603	16.350	51.287	-	51.287	69.998	64.357	48.453	36.483	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Tactical Combat Training System (TCTS) Increment II will provide an improved environment for air combat training utilizing a secure air-to-air and air-to-ground data link, and will provide rangeless operation capability to Forward Deployed Naval Forces (FDNF). TCTS Increment II will provide encryption and an enhanced threat environment, as well as airborne participant instrumentation for multiple fixed and rotary wing platforms. Engineering Development Model (EDM) units in multiple form factors are being developed in FY19 through FY26 and will support Engineering and Developmental Testing events through FY27. The EDMs will be specifically utilized for testing in the following areas: Environmental Qualification, Software, High Accelerated Lifecycle, Ground System Integration, Airborne Subsystem Air Worthiness and Performance, Shipboard Ground Station, Internal Mount and Rack Mounted Subsystem (Internal Mount) Airworthiness and Performance and JSF Airworthiness and Performance. TCTS Increment II provides the foundational encrypted airborne network for implementation of Aviation Live Virtual Constructive (LVC) capabilities.

Aviation LVC Live Aircraft Integration (ALLAI) Phase 1 funds the integration of Live aircraft into the Live, Virtual, Constructive, blended training environment to close the Great Powers Competition training capability gap for mission rehearsal for the high end fight. Aviation LVC will establish an integrated System of Systems (SoS) training environment bringing already-developed capabilities together with new developmental efforts to form a cohesive architecture that accurately emulates the high end fight for warfighter training. LVC takes a hybrid approach to aviation and Fleet-wide training where the training audience in the form of Live personnel operating Live equipment (to include aircraft and surface vessels) on a Tactical Training Range (TTR) will be teamed with Live aircrew operating simulators to provide a Virtual complement in the "Blue Air" picture. The "Red" adversary for this training is made up of Live people operating Live aircraft complemented by computer generated "Red" Constructive Air and Surface threats that stimulate the "Blue" Air displays and sensors as if a "Red" Live adversary were present. Range Training Officers (RTO) operating at the TTR Operations Center monitor and oversee the overall mission picture while directing Live participants and controlling Constructive threats.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: TACTS/LATR REPLACEMENT	22.603	16.350	10.933	0.000	10.933
Articles:	-	-	7	-	7
Description: TCTS: Qualify and complete the On-Range and Rangeless Pod system fielding for all USN Tactical Training Ranges and Carrier Air Wing Five (CVW-5) CVN installation, including the complete Integrated Logistics products and training. Define Test & Training Enabling Architecture (TENA) compliant interface between TCTS and an Advanced Display System (ADS). Develop system form factor variations for use on different fixed wing and rotary wing aircraft as well as surface vessels. Continue development of the encrypted data link. Develop related training range integration.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY 2022 Plans: Continue towards Initial Operational Capability (IOC) and System Authority to Operate (ATO) for Phase 1 for the Participant Airborne Subsystems, which have been reprioritized and redefined. Continue developmental Test for Phase 1 to incorporate deferred requirements and address obsolescence. Continue National Security Agency (NSA) Certification. Continue development of the other system form factors continues. ***FY 2023 Base Plans:*** Achieve IOC for Phase 1 for Participant Airborne Subsystems. System Authority to Operate (ATO) for the Participant Airborne Subsystems will be achieved. Development for Phase 3, which includes hardware and software development activities unique to implementing TCTS II capabilities into the F/A-18 as an Internal Mount (IM) form factor, rotary wing, and maritime aircraft (including LATR capability). Continue software development and integration into training and range networks. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 $5.417M decrease due to transition of Phase 1 from development to production.					
Title: Aviation LVC Live Aircraft Integration - Phase 1	0.000	0.000	40.354	0.000	40.354
Articles:	-	-	-	-	-
Description: 3093 - ALLAI: Develop a System of Systems architecture to simultaneously host developed and developing capabilities in Live aircraft, simulators, and semi-automated forces (SAF) into a blended training environment focusing on Carrier Air Wing F/A-18, EA-18G, and E-2D platforms with flexibility to incorporate additional platforms. Integrate capability enhancements into the TCTS II, NGTS, NCTE and host platform systems to expand high end training capability and integrate system architectures. Mature and expand advanced SAF generation capabilities and integrate host systems to process SAF information to emulate actual threats. Implement system security for System of Systems environment. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** Commence integration of Live, Virtual, and Constructive (LVC) capability to the Tactical Combat Training System Increment II (TCTS II), including Internal Mount enhancement, interoperability with virtual entities, spectral efficiency, system security modifications, and advanced integration with constructive inject systems, Navy					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continuous Training Environment (NCTE), and host platforms. Additional capability development will include Next Generation Threat System (NGTS) development, range live event display and debrief system updates, and development of an embeddable LVC software architecture. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 $40.354M increase supports addition of Live, Virtual, and Constructive (LVC) capability to the Tactical Combat Training System Increment II (TCTS II) including Internal Mount enhancement, interoperability with virtual entities, spectral efficiency and system security modifications, and integration with constructive inject systems, Navy Continuous Training Environment (NCTE), and host platforms. Add features and integrate capabilities in NCTE, Next Generation Threat System (NGTS), and range live event display and debrief systems.					
Accomplishments/Planned Programs Subtotals	22.603	16.350	51.287	0.000	51.287

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPN/4204: *Weapons Range Support Equipment (WRSE)*	86.669	87.748	106.209	-	106.209	116.986	143.531	161.697	164.389	Continuing	Continuing
• APN/0725: *Other Production Charges/Tactical Combat Training System (TCTS)*	18.037	21.374	46.403	-	46.403	51.400	67.161	67.026	67.488	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. Government purchase and validation of the TCTS tech data package in 2023 (APN BLI 0725) will allow for competition of production contracts in 2025 and beyond.

Aviation LVC will employ a phased evolutionary acquisition strategy. This strategy will integrate existing systems while enhancing the capabilities of those systems before incorporating new developmental items into the blended architecture to satisfy the LVC Capabilities Requirements Document.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
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 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/CPIF	COLLINS AEROSPACE : CEDAR RAPIDS, IA	152.327	18.570	Nov 2020	13.396	Oct 2021	10.450	Oct 2022	-		10.450	0.000	194.743	194.743
Software Development	C/CPIF	COLLINS AEROSPACE : CEDAR RAPIDS, IA	0.000	0.000		0.000		7.500	Jan 2023	-		7.500	0.000	7.500	7.500
Software Development	WR	NSWC Corona : Corona, CA	0.000	0.000		0.000		3.500	Nov 2022	-		3.500	Continuing	Continuing	Continuing
Software Development	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		3.500	Nov 2022	-		3.500	Continuing	Continuing	Continuing
Hardware Development	TBD	AFLCMC/HBZ : Hill AFB	0.000	0.000		0.000		7.500	Jan 2023	-		7.500	0.000	7.500	7.500
Software Development	TBD	TBD : TBD	0.000	0.000		0.000		7.500	Mar 2023	-		7.500	0.000	7.500	7.500
Prior Year Prod Dev No Longer Funded in the Budget or Out Years	Various	Various : Various	10.901	0.000		0.000		0.000		-		0.000	0.000	10.901	-
		Subtotal	163.228	18.570		13.396		39.950		-		39.950	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC-AD : PAX RIVER, MD	17.626	0.732	Jan 2021	1.010	Nov 2021	4.000	Nov 2022	-		4.000	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Precise : LEXINGTON PARK, MD	0.515	0.100	Mar 2021	0.000		0.000		-		0.000	0.000	0.615	0.615
Systems Engineering	WR	NAWC-WD : China Lake, MD	0.846	0.045	Mar 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	Various : Various	0.671	0.084	Jan 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Logistics	WR	NAWC-AD : PAX RIVER, MD	3.066	0.507	Jan 2021	0.500	Nov 2021	0.000		-		0.000	0.000	4.073	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3093 / *TACTS/LATR Replacement*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Logistics	WR	FRC SW : San Diego, CA	0.155	0.189	Jan 2021	0.100	Nov 2021	0.000		-		0.000	0.000	0.444	-
Logistics	C/CPFF	Synectic Solutions, Inc. : LEXINGTON PARK, MD	0.683	0.000		0.000		0.000		-		0.000	0.000	0.683	0.683
Systems Engineering	FFRDC	Mitre : Various	0.000	0.000		0.000		2.114	Oct 2022	-		2.114	0.000	2.114	2.114
Systems Engineering	SS/CPFF	ASEC : Patuxent River, MD	0.000	0.000		0.000		0.600	Apr 2023	-		0.600	0.000	0.600	0.600
Prior Year Support No Longer Funded in the Budget or Out Years	Various	Various : Various	29.989	0.000		0.000		0.000		-		0.000	0.000	29.989	29.989
		Subtotal	53.551	1.657		1.610		6.714		-		6.714	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC-AD : PAX RIVER, MD	4.976	0.599	Jan 2021	0.197	Nov 2021	2.000	Nov 2022	-		2.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NAWC-WD : China Lake, MD	0.093	0.258	Feb 2021	0.000		0.000		-		0.000	0.000	0.351	-
Developmental Test & Evaluation	C/CPFF	BAH : McLean, VA	0.000	0.000		0.381	Feb 2022	0.000		-		0.000	0.000	0.381	0.381
Developmental Test & Evaluation	WR	Various : Various	0.624	0.783	Feb 2021	0.369	Nov 2021	0.000		-		0.000	0.000	1.776	-
Prior Year T&E No Longer Funded in the Budget or Out Years	Various	Various : Various	3.425	0.000		0.000		0.000		-		0.000	0.000	3.425	-
		Subtotal	9.118	1.640		0.947		2.000		-		2.000	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3093 / *TACTS/LATR Replacement*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prog Mgnt Sup	WR	NAWC-AD : PAX RIVER, MD	8.761	0.487	Jan 2021	0.381	Nov 2021	1.500	Nov 2022	-		1.500	Continuing	Continuing	Continuing
Travel	Allot	NAVAIR : PAX RIVER, MD	0.154	0.016	Oct 2020	0.016	Oct 2021	0.200	Oct 2022	-		0.200	Continuing	Continuing	Continuing
Prog Mgnt Sup	C/CPFF	Precise : LEXINGTON PARK, MD	0.722	0.233	Mar 2021	0.000		0.000		-		0.000	0.000	0.955	0.955
Prog Mgnt Sup	WR	Various : Various	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Prog Mgnt Sup	WR	NAWCTSD : Orlando, FL	0.000	0.000		0.000		0.500	Nov 2022	-		0.500	Continuing	Continuing	Continuing
Prog Mgnt Sup	TBD	TBD : TBD	0.000	0.000		0.000		0.423	Nov 2022	-		0.423	0.000	0.423	-
Prior Year Mgmt No Longer Funded in the Budget or Out Years	Various	Various : Various	16.059	0.000		0.000		0.000		-		0.000	0.000	16.059	-
		Subtotal	25.946	0.736		0.397		2.623		-		2.623	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	251.843	22.603		16.350		51.287		-		51.287	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

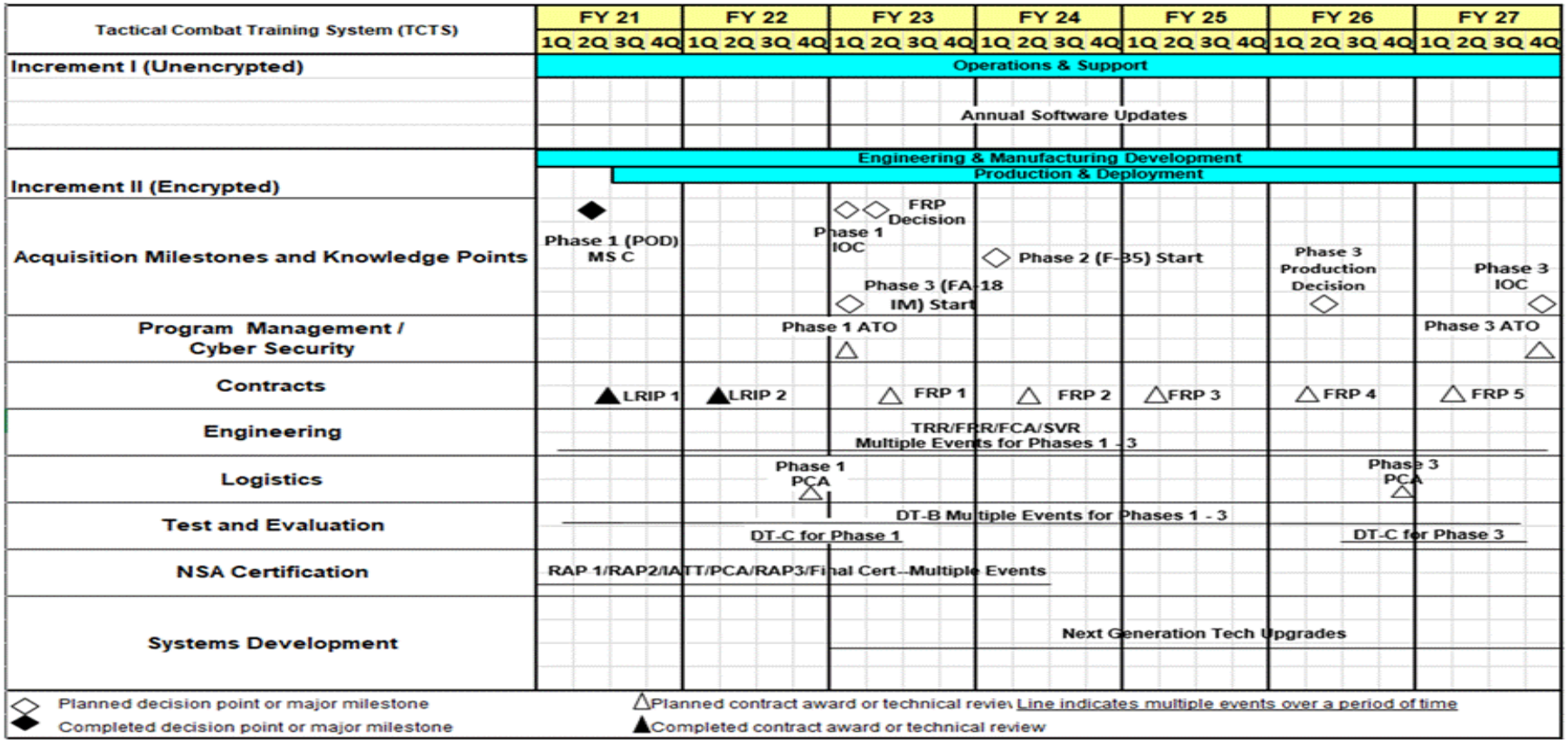

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

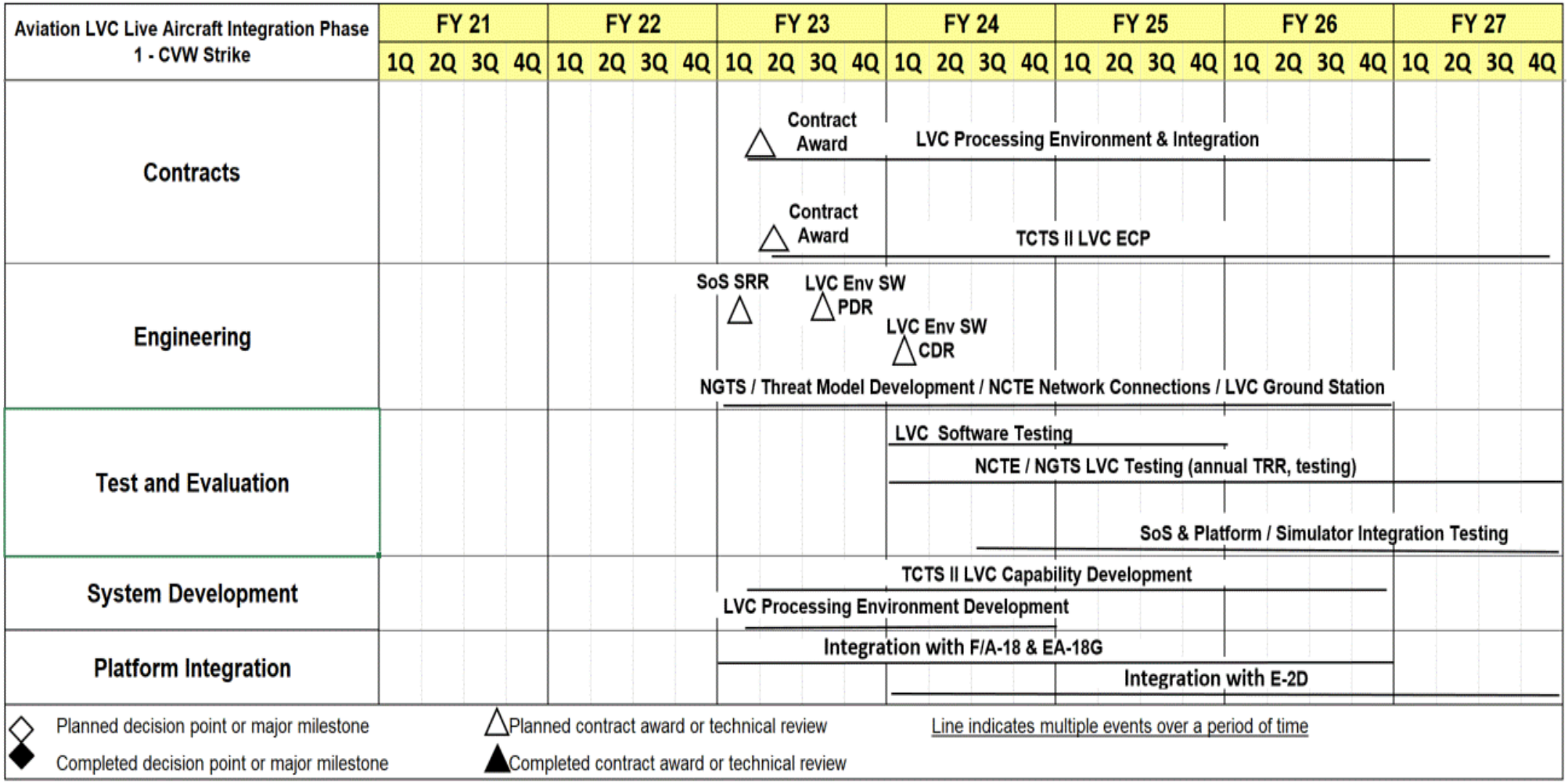

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
TACTS/LATR Replacement				
Phase 1 (POD) MS C	3	2021	3	2021
Phase 1 (POD) IOC	1	2023	1	2023
Phase 1 FRP	2	2023	2	2023
Phase 3 (F/A-18 IM) Start	1	2023	1	2023
Phase 2 (F-35 IM) Start	1	2024	1	2024
Phase 3 (IM & IRSS) Production Decision	2	2026	2	2026
Phase 3 IOC	4	2027	4	2027
Program Management/Cyber Security: Phase 1 (POD) Authority to Operate	1	2023	1	2023
Program Management/Cyber Security: Phase 3 (IM & IRSS) Authority to Operate	4	2027	4	2027
Contracts: Phase 1 EMD	1	2021	4	2022
Contracts: Phase 2 EMD	2	2022	3	2026
Contracts: Phase 3 EMD	1	2023	3	2026
Contracts: Phase 1 LRIP 1	2	2021	2	2021
Contracts: Phase 1 LRIP 2	2	2022	2	2022
Contracts: Phase 1 Full Rate Production 1	2	2023	2	2023
Contracts: Phase 1Full Rate Production 2	1	2024	1	2024
Contracts: Phase 1 Full Rate Production 3	1	2025	1	2025
Contracts: Phase 1 Full Rate Production 4	1	2026	1	2026
Contracts: Phase 1 Full Rate Production 5	1	2027	1	2027
Engineering: Test Readiness Review / Flight Readiness Review / Functional Configuration Audit / System Verification Review	1	2021	3	2027
Logistics: Phase 1 (POD) Physical Configuration Audit	4	2022	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Logistics: Phase 3 (IM & IRSS) Physical Configuration Audit	4	2026	4	2026
Test & Evaluation: Developmental Test B - Multiple Events for Phases 1-3	1	2021	3	2027
Test & Evaluation: Developmental Test C - Phase 1	3	2022	2	2023
Test & Evaluation: Developmental Test C - Phase 3	3	2026	3	2027
NSA Certification: RAP 1/RAP 2/IATT/PCA/RAP 3/Final Cert	1	2021	2	2024
Systems Development: Phase 1 Development	1	2021	4	2022
Systems Development: LATR Capability Gap Development (Phase 3)	2	2022	3	2026
Systems Development: Next Generation Technology Upgrades	1	2023	4	2027
Aviation LVC Live Aircraft Integration				
Aviation LVC Live Aircraft Integration Kickoff	1	2023	1	2023
Embedded Inject to Live IOC	3	2024	3	2024
NCTE Connection	4	2024	4	2024
F/A-18 EA-18G LVC IOC	4	2025	4	2025
F/A-18 EA-18G LVC FOC	4	2027	4	2027
E-2D LVC IOC	4	2027	4	2027
Contracts: LVC Processing Environment and Integration	1	2023	1	2027
Contracts: TCTS II LVC ECP	2	2023	4	2027
Engineering: System of Systems SRR	1	2023	1	2023
Engineering: LVC Environment PDR	3	2023	3	2023
Engineering: LVC Environment CDR	1	2024	1	2024
Engineering: NGTS Threat Model Develoment	1	2023	4	2026
Test and Evaluation: LVC Software Testing	1	2024	4	2025
Test and Evaluation: NCTE/NGTS LVC Testing	1	2024	4	2027
Test and Evaluation: System of Systems Platform and Simulator Integration Testing	3	2024	4	2027
System Development: TCTS II LVC Capability Development	1	2023	4	2026
System Development: LVC Processing Environment Development	1	2023	4	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Platform Integration: Integration with F/A-18 and EA-18G	1	2023	4	2026
Platform Integration: Integration with E-2D	1	2024	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
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 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
3356: *High Fidelity Surface Trainers*	31.383	3.980	1.595	0.197	-	0.197	0.008	0.008	0.014	0.007	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This line funds high fidelity Aegis Integrated Air and Missile Defense (IAMD) individual, instructor, strike group and team trainers to support all Advanced Capability Build (ACB) and below Aegis baselines. This line provides funds for development of a High Fidelity Aegis Combined Integrated Air and Missile Defense (IAMD) and Anti-Submarine Warfare (ASW)
Trainer (CIAT) to enable tactics, techniques, and procedure development and allow advanced warfare training (AWT) Phase II and Surface Warfare Advanced Tactical training 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 Department of the Navy requirements. This line supports Surface Training Advanced Virtual Environment (STAVE) methodology by researching and developing trainers that will create an immersive and interactive learning environment and support both CNO High Velocity Learning and Ready Relevant Learning intent. It includes development of the Surface Training and Readiness Management System (STRMS) required for the identification of quantifiable operator and maintainer competencies for each mission area and associated tracking system development and testing.

NOTE: In FY18, Mine Warfare Synthetic Training requirements previously captured within PE 0204571N / Proj 3356 (High Fidelity Surface Trainer) were realigned to PE 0603502N Surface & Shallow Water MCM / Proj 1235 (Mine Warfare Planning and Analysis).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**
Title: Combined IAMD ASW Trainer (CIAT)	0.000	0.210	0.197	0.000	0.197
Articles:	-	-	-	-	-
FY 2022 Plans: The transition to the Combat System Simulator/Stimulator (CS3) and Joint Advanced Warfare Scenarios (JAWS) in to future CIAT Software versions.					
FY 2023 Base Plans: Continuing research and development of the Combat System Simulator/Stimulator (CS3) and Joint Advanced Warfare Scenarios (JAWS) in to future CIAT Software versions.					
FY 2023 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY23 $0.013M decreased due to current Surface and Expeditionary Warfare Training Plan (SEWTP) requirements.					
Title: Air Defense Strike Group Facility	1.440	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2022 Plans: N/A ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A					
Title: Surface Training Readiness Management System (STRMS)	2.540	1.385	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2022 Plans: Research and develop advanced technologies that will enable development of capability to identify quantifiable operator and maintainer competencies for each mission area and an associated shipboard training management and tracking system for the purpose of determining training effectiveness ashore and at sea. Refine Phase I design and continue Phase I capability development. Create a Surface Training and Readiness Management System (STRMS) Phase II research and incremental phased development Plan of Actions and Milestones (POAM) to continue design, development and delivery of STRMS capability in support of all STRMS Capability Requirements Document (CRD) defined User Cases. Communicate and collaborate in development of IT architecture and data integration supportive of Surface Training Advanced Virtual Environment (STAVE), STRMS and My Navy Learning (MNL) requirements. ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY23 $1.385M decrease due to the completion of STRMS [Phase 1] development.					
Accomplishments/Planned Programs Subtotals	3.980	1.595	0.197	0.000	0.197

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The software development and advanced technology upgrades for High Fidelity Surface Trainers are accounted for in this RDT&E line. These upgrades will provide an enabling technology to an existing training system.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
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 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SYSTEMS ENG	WR	NSWC DAHLGREN : DAHLGREN,VA	18.871	2.118	Nov 2020	1.020	Nov 2021	0.197	Nov 2022	-		0.197	Continuing	Continuing	Continuing
SYSTEMS ENG	WR	NSWC CARDEROCK : CARDEROCK, MD	6.320	0.000		0.075	Nov 2021	0.000		-		0.000	0.000	6.395	-
SYSTEMS ENG	WR	NUWC NEWPORT : NEWPORT, RI	2.076	0.000		0.000		0.000		-		0.000	0.000	2.076	-
SYSTEMS ENG	MIPR	U.S. ARMY SMDC : HUNTSVILLE, AL	0.147	0.000		0.000		0.000		-		0.000	0.000	0.147	-
SYSTEMS ENG	WR	NAWCTSD : ORLANDO, FL	1.698	0.000		0.000		0.000		-		0.000	0.000	1.698	-
SYSTEMS ENG	TBD	LOCKHEED MARTIN : TBD	1.976	1.440	Mar 2021	0.000		0.000		-		0.000	0.000	3.416	-
SYSTEMS ENG	WR	NSWC, Corona : CORONA, CA	0.295	0.422	Nov 2020	0.500	Nov 2021	0.000		-		0.000	0.000	1.217	-
SYSTEMS ENG	TBD	Office of Naval Research (ONR) : ARLINGTON, VA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
		Subtotal	31.383	3.980		1.595		0.197		-		0.197	Continuing	Continuing	N/A

Remarks

FY23 Program changes associated with the following:
1) Support of continuing research and development of the Combat System Simulator/Stimulator (CS3) and Joint Advanced Warfare Scenarios (JAWS) in to future CIAT Software versions.
2) Completion of the development phase of the Surface Training Readiness Management System (STRMS) program.

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	31.383	3.980		1.595		0.197		-		0.197	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
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*

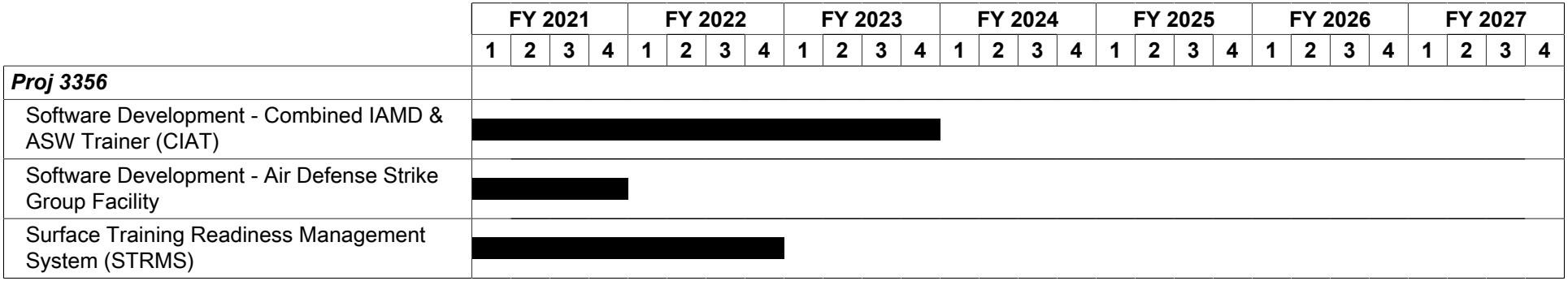

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3356 / *High Fidelity Surface Trainers*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3356				
Software Development - Combined IAMD & ASW Trainer (CIAT)	1	2021	4	2023
Software Development - Air Defense Strike Group Facility	1	2021	4	2021
Surface Training Readiness Management System (STRMS)	1	2021	4	2022