Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy											Date: May 2021	
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 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
Total Program Element	607.119	129.251	75.508	56.741	-	56.741	-	-	-	-	-	-
0604: *Training Range & Instr Dev*	154.103	5.489	3.527	2.446	-	2.446	-	-	-	-	-	-
1427: *Surface Tactical Team Trainer (STTT)*	174.611	65.134	43.167	34.744	-	34.744	-	-	-	-	-	-
2124: *Air Warfare Training*	52.132	1.675	1.581	1.606	-	1.606	-	-	-	-	-	-
3093: *TACTS/LATR Replacement*	197.161	54.682	23.183	16.350	-	16.350	-	-	-	-	-	-
3356: *High Fidelity Surface Trainers*	29.112	2.271	4.050	1.595	-	1.595	-	-	-	-	-	-

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy	Date: May 2021
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*

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 FY23. 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.

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. 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 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)].

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy					Date: May 2021
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*		
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	128.673	83.956	51.823	-	51.823
Current President's Budget	129.251	75.508	56.741	-	56.741
Total Adjustments	0.578	-8.448	4.918	-	4.918
• Congressional General Reductions	-	-0.248			
• Congressional Directed Reductions	-	-8.200			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	5.043	0.000			
• SBIR/STTR Transfer	-4.465	0.000			
• Program Adjustments	0.000	0.000	5.552	-	5.552
• Rate/Misc Adjustments	0.000	0.000	-0.634	-	-0.634

Change Summary Explanation

0604:
FY 2022 decrease ($1.081M) due to the reduced requirements for operational system.

1427:
FY 2022 funding request was reduced by $1.539 million to account for the availability of prior year execution balances.
FY 2022 decrease ($6.884M) reflects support of Live, Virtual, and Constructive (LVC) continuing transition into ATD / BFTT for integration, DDG 1000 Wholeness/ Surface Strike FY22 expected project completion; and CIAT TO SEA engineering efforts expected completion.

2124:
All FY 2022 events from Human / Instruction Systems Integration, Sensors and Environment, and Live Virtual Constructive (LVC) and Visuals moved to the new Air Warfare Training Development area, including: Systems Development and Production Milestone events for LVC beginning in FY 2022, Extended Reality Device Development beginning in FY 2022, and Evaluation and Training Analytics beginning in FY 2022.

3093:
FY 2022 decrease ($6.833M) due to the completion of development for Phase 1 for the PODs.
Phase 2 (JSF IM) Production Decision has moved from 1Q2022 to after FY2022.
Phase 1 ATO has moved from 3Q2021 to 3Q2022.
Phase 2 ATO has moved from 3Q2022 to after FY2022.
Added the purchase of 8 EDM quantities in FY22.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy	Date: May 2021
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*

3356:
FY 2022 decrease ($2.455M) due to Air Defense Strike Group Facility development phase completion and Surface Training Readiness Management System (STRMS) Phase I capability development is built out.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy									Date: May 2021			
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 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
0604: *Training Range & Instr Dev*	154.103	5.489	3.527	2.446	-	2.446	-	-	-	-	-	-
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: LATR	2.878	1.833	0.752	0.000	0.752
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 2021 Plans: Develop and test Large Area Tracking Range (LATR) ground software 6.6 upgrades. Continue to develop operational system improvements and solutions to reduce LATR obsolescence issues.					
FY 2022 Base Plans: 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 2022 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease of $1.081M in FY 2022 represents the reduced requirements for operational system improvements and solutions for LATR obsolescence issues as the system reaches the end of its service life.					
Title: TTR	1.948	1.031	1.031	0.000	1.031
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 2021 Plans:*** Develop and test 2021.1 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 2022 Base 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. Develop and test Tactical Training Ranges (TTR) ground software changes to incorporate Live, Virtual, and Constructive (LVC) technology. ***FY 2022 OCO Plans:*** N/A					
Title: Ocean Systems	0.663	0.663	0.663	0.000	0.663
Articles:	-	-	-	-	-
Description: Research, develop, and test technology improvements for fixed and portable Anti-Submarine Warfare (ASW) training ranges.					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
FY 2021 Plans: To complete and deliver Phase 5 of the Next Generation Technology Development at various Anti-Submarine Warfare (ASW) training ranges. ***FY 2022 Base Plans:*** To complete and deliver Phase 6 of the Next Generation Technology Development at various Anti-Submarine Warfare (ASW) training ranges. ***FY 2022 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	5.489	3.527	2.446	0.000	2.446

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN/4204: *Weapons Range Support Equipment (WRSE)/ LSRTU/Ocean Systems*	99.398	83.377	96.816	-	96.816	-	-	-	-	-	-

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 2022 Navy			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/CPFF	JACOBS ENG : RIDGECREST, CA	13.159	0.730	Feb 2020	0.000		0.000		-		0.000	-	-	-
Hardware Development	WR	NSWC : CORONA, CA	0.000	0.357	Dec 2019	0.260	Feb 2021	0.100	Nov 2021	-		0.100	-	-	-
Hardware Development	C/CPFF	ATI : Summerville, SC	0.000	0.150	May 2020	0.000		0.000		-		0.000	-	-	-
Software Development	WR	NUWC : NEWPORT, RI	0.683	0.600	Dec 2019	1.005	Dec 2020	0.584	Nov 2021	-		0.584	-	-	-
Software Development	C/CPFF	JACOBS ENG : RIDGECREST, CA	5.439	0.202	Jun 2020	0.291	Jun 2021	0.200	Nov 2021	-		0.200	-	-	-
Software Development	WR	NAWC-AD : PAX RIVER, MD	10.053	0.760	Dec 2019	0.883	Dec 2020	0.500	Nov 2021	-		0.500	-	-	-
Software Development	WR	NSWC : CORONA, CA	0.000	0.458	Dec 2019	0.000		0.000		-		0.000	-	-	-
Software Development	WR	NAWC-WD : POINT MUGU, CA	0.000	0.375	Nov 2019	0.000		0.000		-		0.000	-	-	-
Prior Year Prod Dev No Longer Funded in the FYDP	Various	Various : Various	100.705	0.000		0.000		0.000		-		0.000	-	-	-
		Subtotal	130.039	3.632		2.439		1.384		-		1.384	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC-AD : PAX RIVER, MD	1.822	0.355	Dec 2019	0.262	Dec 2020	0.262	Nov 2021	-		0.262	-	-	-
Systems Engineering	WR	NAWC-WD : CHINA LAKE, CA	1.293	1.132	Jan 2020	0.826	Dec 2020	0.800	Nov 2021	-		0.800	-	-	-
Systems Engineering	WR	NSWC : CORONA, CA	0.985	0.246	Dec 2019	0.000		0.000		-		0.000	-	-	-
Systems Engineering	WR	GSA : Washington, DC	0.000	0.124	Aug 2020	0.000		0.000		-		0.000	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-	-	-
		Subtotal	15.026	1.857		1.088		1.062		-		1.062	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-	-	-
		Subtotal	5.299	0.000		0.000		0.000		-		0.000	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 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	-	-	-
		Subtotal	3.739	0.000		0.000		0.000		-		0.000	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	154.103	5.489		3.527		2.446		-		2.446	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
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*

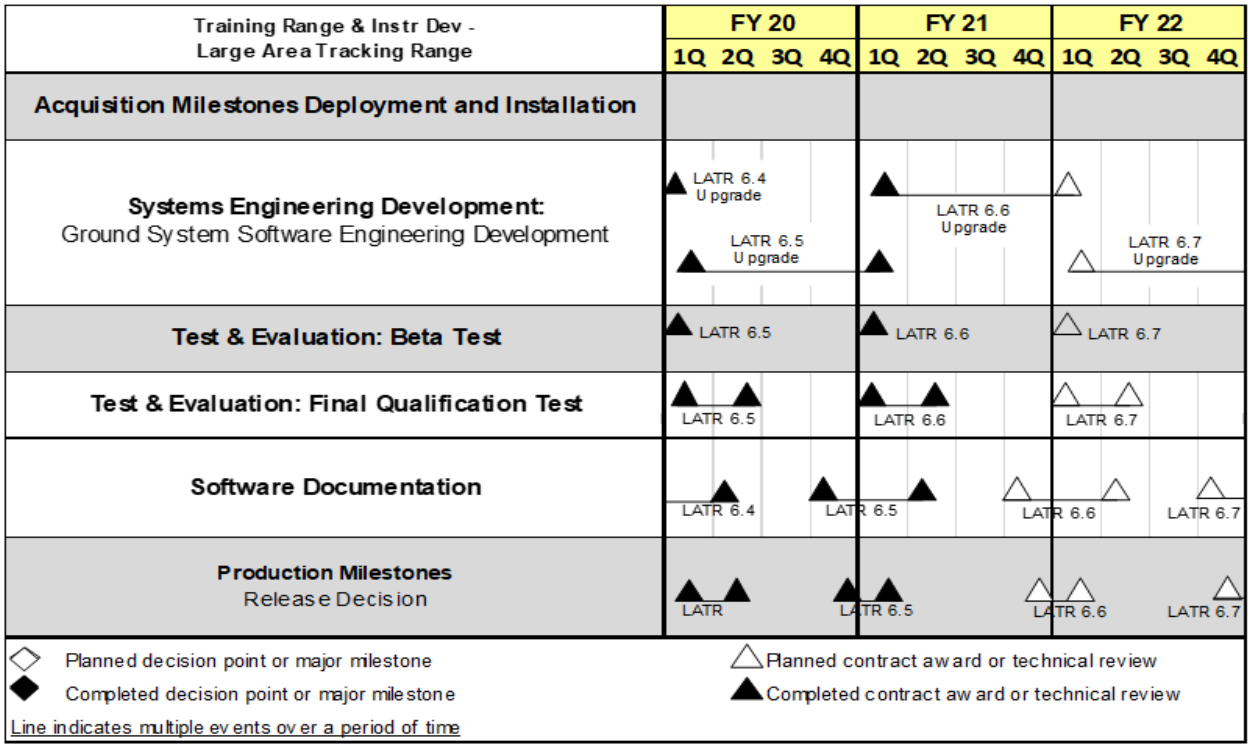

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

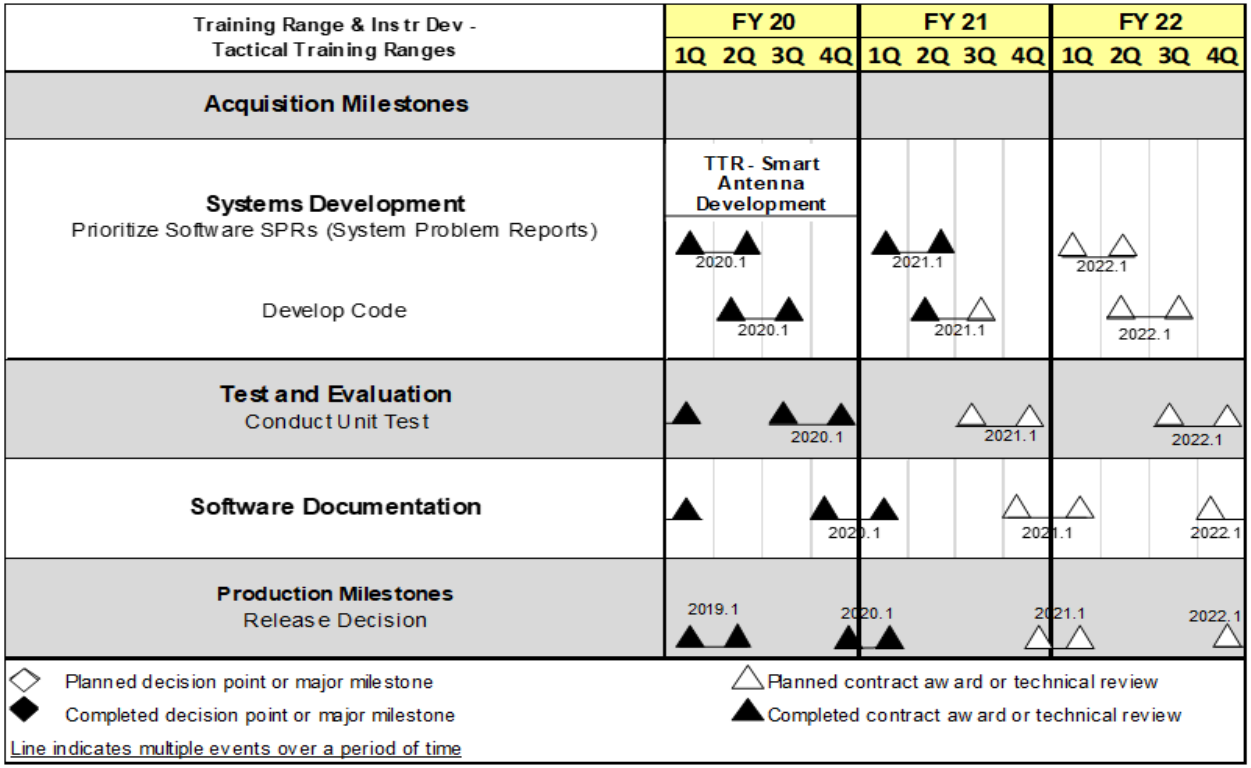

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

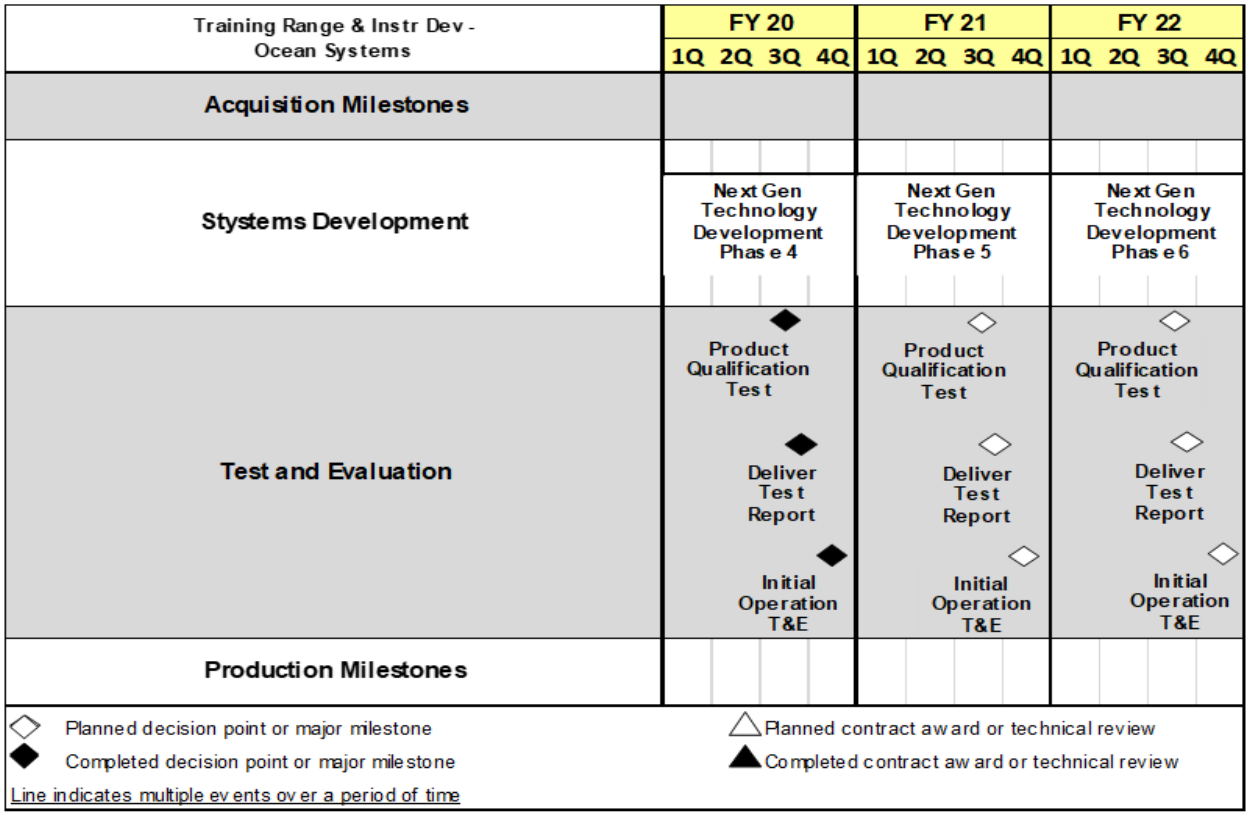

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Training Range & Instr Dev - Large Area Tracking Range				
System Development: LATR - 6.4 Software Engineering Development	1	2020	1	2020
System Development: LATR - 6.5 Software Engineering Development	1	2020	1	2021
System Development: LATR - 6.6 Software Engineering Development	1	2021	1	2022
System Development: LATR - 6.7 Software Engineering Development	1	2022	4	2022
Test & Evaluation: Beta Testing: LATR - 6.5 Beta Test	1	2020	1	2020
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 - 6.5 Final Qualification Test	1	2020	2	2020
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 - 6.4	1	2020	2	2020
Production Milestones: Software Documentation: LATR - 6.5	4	2020	2	2021
Production Milestones: Software Documentation: LATR - 6.6	4	2021	2	2022
Production Milestones: Software Documentation: LATR - 6.7	4	2022	4	2022
Production Milestones: Release Decision: LATR - 6.4	1	2020	2	2020
Production Milestones: Release Decision: LATR - 6.5	4	2020	1	2021
Production Milestones: Release Decision: LATR - 6.6	4	2021	1	2022
Production Milestones: Release Decision: LATR - 6.7	4	2022	4	2022
Training Range & Instr Dev - Tactical Training Ranges				
System Development: TTR - SMART ANTENNA DEVELOPMENT	1	2020	4	2020
System Development: Prioritize Software System Problem Reports (SPRs): TTR - 2020.1	1	2020	2	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
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**
System Development: Prioritize Software System Problem Reports (SPRs): TTR - 2021.1	1	2021	2	2021
System Development: Prioritize Software System Problem Reports (SPRs): TTR - 2022.1	1	2022	2	2022
System Development: Develop Code: TTR - 2020.1	2	2020	3	2020
System Development: Develop Code: TTR - 2021.1	2	2021	3	2021
System Development: Develop Code: TTR - 2022.1	2	2022	3	2022
Test & Evaluation: Conduct Unit Test: TTR - 2019.1	1	2020	1	2020
Test & Evaluation: Conduct Unit Test: TTR - 2020.1	3	2020	4	2020
Test & Evaluation: Conduct Unit Test: TTR - 2021.1	3	2021	4	2021
Test & Evaluation: Conduct Unit Test: TTR - 2022.1	3	2022	4	2022
Production Milestones: Software Documentation: TTR - 2019.1	1	2020	1	2020
Production Milestones: Software Documentation: TTR - 2020.1	4	2020	1	2021
Production Milestones: Software Documentation: TTR - 2021.1	4	2021	1	2022
Production Milestones: Software Documentation: TTR - 2022.1	4	2022	4	2022
Production Milestones: Release Decision: TTR - 2019.1	1	2020	2	2020
Production Milestones: Release Decision: TTR - 2020.1	4	2020	1	2021
Production Milestones: Release Decision: TTR - 2021.1	4	2021	1	2022
Production Milestones: Release Decision: TTR - 2022.1	4	2022	4	2022
Ocean Systems				
System Development: Next Gen Technology Development Phase 4	1	2020	4	2020
System Development: Next Gen Technology Development Phase 5	1	2021	4	2021
System Development: Next Gen Technology Development Phase 6	1	2022	4	2022
Test & Evaluation: Product Qualification Test: Phase 4	3	2020	3	2020
Test & Evaluation: Product Qualification Test: Phase 5	3	2021	3	2021
Test & Evaluation: Product Qualification Test: Phase 6	3	2022	3	2022
Test & Evaluation: Deliver Test Report: Phase 4	3	2020	3	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
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 5	3	2021	3	2021
Test & Evaluation: Deliver Test Report: Phase 6	3	2022	3	2022
Test & Evaluation: Initial Operation T&E: Phase 4	4	2020	4	2020
Test & Evaluation: Initial Operation T&E: Phase 5	4	2021	4	2021
Test & Evaluation: Initial Operation T&E: Phase 6	4	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy									Date: May 2021			
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 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
1427: *Surface Tactical Team Trainer (STTT)*	174.611	65.134	43.167	34.744	-	34.744	-	-	-	-	-	-
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.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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)*

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. 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 Naval Integrated Fire Control - Counter Air (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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Surface Tactical Team Trainer (STTT)	14.018	11.897	11.926	0.000	11.926
Articles:	-	-	-	-	-
FY 2021 Plans: Conduct Element Certification of ATD 1.0 with AEGIS BL 9.2.2 and SSDS BL 12.0 Continue integration and test of ATD 1.1 with AEGIS BL 10.0 and SSDS BL 12.x Finalize preliminary design and begin critical design of ATD 1.2					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
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 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. Begin 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). ***FY 2022 Base Plans:*** Continue integration and test of ATD 1.1 with AEGIS BL 10.0 and SSDS BL 12.x 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 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 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY22 increase of $0.029M supports transition of Fleet Training Wholeness products into ATD / BFTT for integration and testing.					
Title: Fleet Training Wholeness	29.401	23.495	16.818	0.000	16.818
Articles:	-	-	-	-	-
FY 2021 Plans: Continue development, and integration of Strike Group CEC Underway Training capability.					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Continue development, test and integration of simulation over live capabilities within the ship radar systems. Continue development of the Virtual Tactical Bridge embarked Shipboard Radio (VTBeSR) engineering development model testing, finalize the technical Data Package, and conduct shipboard testing. VTBeSR development is being conducted to replace the legacy, and obsolete Training Communications Sub-System (TCSS). ***FY 2022 Base 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. Continue development, testing and certification of the VTBeSR product integrated into BFTT and ATD to meet LVC training requirements in support of Fleet Training wholeness. 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. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY22 decrease of $6.677M reflects Fleet Training Wholeness products in support of Live, Virtual, and Constructive (LVC) are continuing and beginning to transition into ATD / BFTT for integration.					
Title: DDG 1000 Wholeness/Surface Strike	13.451	1.575	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2021 Plans: Complete development and integration of the DDG 1000 On-Board Trainer (OBT) within the DDG 1000 shipboard Data Center. ***FY 2022 Base Plans:*** Project completed. ***FY 2022 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY22 decrease is due to expected project completion.					
Title: CIAT TO SEA	8.264	6.200	6.000	0.000	6.000
Articles:	-	-	-	-	-
FY 2021 Plans: Continue limited engineering efforts to integrate the higher fidelity Combined Integrated Air and Missile (IAMD) and Anti-Submarine Warfare (ASW) Trainer (CIAT) capabilities into ATD 2.0 (CIAT to SEA) for integration with AEGIS shipboard systems. ***FY 2022 Base Plans:*** 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) 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 will be rolled in under ATD as the next developed system that aligns to combat systems virtualization efforts. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY22 decrease of $0.200M due to engineering efforts planned to be completed in Q4FY2022.					
Accomplishments/Planned Programs Subtotals	65.134	43.167	34.744	0.000	34.744

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• RDTE/0604307N/3357: *Aegis Training Improvement Program*	9.683	8.667	7.018	-	7.018	-	-	-	-	-	-
• RDTE/0604755N/3358: *SSDS Training Improvement Program*	8.198	9.030	12.421	-	12.421	-	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN/5664/MB040/MB5IN: *Other Training Equipment (Surface BFTT/ TSTC portion only) New BLI FY17*	25.100	59.337	83.365	-	83.365	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/FFP	GTS : Virginia Beach, VA	16.608	0.620	Dec 2019	0.600	Dec 2020	0.610	Dec 2021	-		0.610	-	-	-
Systems Engineering	WR	SEA02/NSWC Dam Neck/NSWC Dahlgren : NAVSEA/ Dam Neck/NSWC Dahlgren	50.350	25.397	Dec 2019	23.397	Dec 2020	17.000	Dec 2021	-		17.000	-	-	-
		Subtotal	66.958	26.017		23.997		17.610		-		17.610	-	-	N/A

Remarks

Systems Engineering Increases for developing the engineering change to implement the ability for the combat systems and sensors to augment live exercises with simulation, begin engineering solutions to embed the Combined IAMD and ASW Trainer (CIAT) on the next AEGIS Baseline, and to develop the engineering changes to incorporate the DDG 1000 On-Board Trainer (OBT) within the ships data centers.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	NSWC Dam Neck/ SEA 02 : WR/REQN	69.215	32.332	Dec 2019	14.236	Dec 2020	12.461	Dec 2021	-		12.461	-	-	-
		Subtotal	69.215	32.332		14.236		12.461		-		12.461	-	-	N/A

Remarks

Software Development increases for developing combat system and sensor software changes to implement the capability to augment live exercises with simulation; develop the CIWS Simulation for integration on to SSDS and AEGIS; and develop the software modifications to integrate DDG 1000 On-board Trainer. Decrease from FY20 to FY21 is due to DDG 1000 development which will be completed in FY21.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Dam Neck/ SEA 02 : WR/REQN	23.502	5.164	Dec 2019	3.204	Dec 2020	3.473	Dec 2021	-		3.473	-	-	-
		Subtotal	23.502	5.164		3.204		3.473		-		3.473	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
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)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NSWC Dam Neck/ SEA02 : WR/REQN	14.936	1.621	Dec 2019	1.730	Dec 2020	1.200	Dec 2021	-		1.200	-	-	-
		Subtotal	14.936	1.621		1.730		1.200		-		1.200	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	174.611	65.134		43.167		34.744		-		34.744	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
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)*

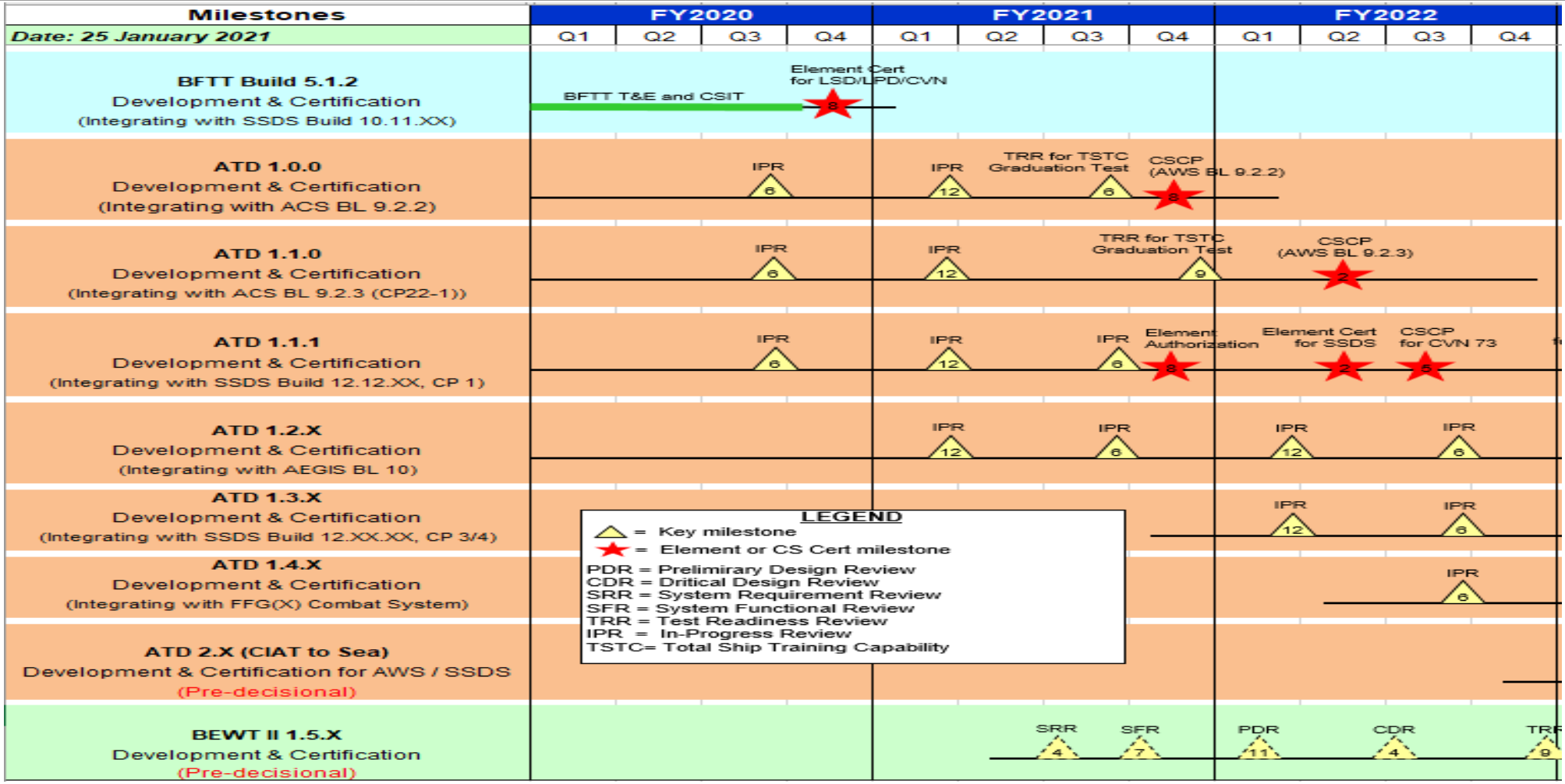

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1427				
BFTT Build 5.1.2 Element Cert for LSD/LPD/CVN	4	2020	4	2020
ATD 1.0 IPR #1	3	2020	3	2020
ATD 1.0 IPR #2	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	3	2020	3	2020
ATD 1.1.0 IPR #2	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 for SSDS Build 12.XX	3	2020	3	2020
ATD 1.1.1 IPR #2	1	2021	1	2021
ATD 1.1.1 IPR #3	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 1.2.X IPR #1 for AWS BL10	1	2021	1	2021
ATD 1.2.X IPR #2 for AWS BL10	3	2021	3	2021
ATD 1.2.X IPR #3 for AWS BL10	1	2022	1	2022
ATD 1.2.X IPR #4 for AWS BL10	3	2022	3	2022
ATD 1.3.X IPR #1	1	2022	1	2022
ATD 1.3.X IPR #2	3	2022	3	2022
ATD 1.4.X IPR #1	3	2022	3	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
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)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
BEWT II 1.5X SRR	3	2021	3	2021
BEWT II 1.5X SFR	4	2021	4	2021
BEWT II 1.5X PDR	1	2022	1	2022
BEWT II 1.5X CDR	3	2022	3	2022
BEWT II 1.5X TRR	4	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy											Date: May 2021	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*				Project (Number/Name) 2124 / *Air Warfare Training*			
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
2124: *Air Warfare Training*	52.132	1.675	1.581	1.606	-	1.606	-	-	-	-	-	-
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: HUMAN/INSTRUCTIONAL SYSTEMS INTEGRATION	0.935	0.841	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 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 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 2021 Plans:*** Complete fidelity improvements for synthetic entity systems (e.g. NGTS, JSAF), including virtual crewman and wingman capability and speech recognition control. Develop heterogenous data fusion capability to support intelligent, semi-automated performance measurement and debrief capability in support of Live, Virtual and Constructive (LVC) training environments. Integrate expandable flight deck crew trainer with Virtual Wingman capability based on Commercial Off the Shelf (COTS) virtual and augmented reality technology. ***FY 2022 Base Plans:*** N/A ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease in FY2022 due to planned program consolidation to a single entry. Modern technologies cross the lines between historical divisions (e.g. merging of environmental and aircraft sensor information via Virtual Reality/ Augmented Reality displays). Consolidation will also allow for the program office to meet Command goals for reduction in transactional volume.					
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	0.240 -	0.240 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
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 2021 Plans:*** Complete Collaborative Database Rapid Terrain Generation Phase 1 which delivers enhanced terrain recognition capability. Develop AR/VR/MR Head Mounted Display (HMD) to provide near human visual acuity. Develop haptic feedback capability to support AR/VR/MR interaction. Develop and test metrics and procedures for equating the performance of virtual and augmented reality display systems to legacy Navy Aviation Simulation Master Plan (NASMP) display systems. 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 2022 Base Plans:*** N/A ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease in FY2022 due to planned program consolidation to a single entry. Modern technologies cross the lines between historical divisions (e.g. merging of environmental and aircraft sensor information via Virtual Reality/ Augmented Reality displays). Consolidation will also allow for the program office to meet Command goals for reduction in transactional volume.					
Title: LIVE VIRTUAL CONSTRUCTIVE (LVC), AND VISUALS	0.500	0.500	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Air Warfare Training Development provides for risk mitigation and next generation platform, Unmanned Aerial Systems, Live Virtual 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					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
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 2021 Plans:*** 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, threat system enhancements, and sensor/ visualization modeling. Deliver Flight Deck Training Expansion Pack incorporating Signal Officer (LSO) training capability. ***FY 2022 Base Plans:*** N/A ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease in FY2022 due to planned program consolidation to a single entry. Modern technologies cross the lines between historical divisions (e.g. merging of environmental and aircraft sensor information via Virtual Reality/ Augmented Reality displays). Consolidation will also allow for the program office to meet Command goals for reduction in transactional volume.					
Title: AIR WARFARE TRAINING DEVELOPMENT	0.000	0.000	1.606	0.000	1.606
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 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					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
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 2021 Plans:*** N/A ***FY 2022 Base 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 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 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Establishment of this planned program reflects consolidation of historical accomplishment areas to a single entry. Modern technologies cross the lines between historical divisions (e.g. merging of environmental and aircraft sensor information via Virtual Reality/ Augmented Reality displays). Consolidation will also allow for the program office to meet Command goals for reduction in transactional volume.					
Accomplishments/Planned Programs Subtotals	1.675	1.581	1.606	0.000	1.606

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• APN/0705:: *COMMON GROUND EQUIPMENT - TRAINING*	251.078	281.566	251.964	-	251.964	-	-	-	-	-	-

Remarks

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 2022 Navy			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPFF	Bohemia Interactive : ORLANDO, FL	0.772	0.060	Feb 2020	0.220	Mar 2021	0.000		-		0.000	-	-	-
Software Development	C/CPFF	Aptima : WOBURN, MA	0.424	0.000		0.200	Mar 2021	0.000		-		0.000	-	-	-
Software Development	C/CPFF	SOAR Tech : ORLANDO, FL	0.000	0.080	Apr 2020	0.000		0.050	Mar 2022	-		0.050	-	-	-
Software Development	WR	NAWCTSD : ORLANDO, FL	25.802	0.861	Dec 2019	0.520	Nov 2020	0.351	Nov 2021	-		0.351	-	-	-
Software Development	WR	NAMRU : SILVER SPRING, MD	0.000	0.020	Jan 2020	0.000		0.000		-		0.000	-	-	-
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	-	-	-
		Subtotal	37.690	1.021		0.940		0.401		-		0.401	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Engility : ANDOVER, MA	0.000	0.203	Apr 2020	0.000		0.000		-		0.000	-	-	-
Systems Engineering	WR	NAWCAD : PATUXENT RIVER, MD	0.068	0.000		0.120	Nov 2020	0.000		-		0.000	-	-	-
Systems Engineering	WR	NAWCTSD : ORLANDO, FL	0.020	0.116	Jun 2020	0.150	Nov 2020	0.776	Nov 2021	-		0.776	-	-	-
Prior Year Support No Longer Funded in the Budget or Out Years	Various	Various : Various	3.874	0.000		0.000		0.000		-		0.000	-	-	-
		Subtotal	3.962	0.319		0.270		0.776		-		0.776	-	-	N/A

Remarks

The increase of Systems Engineering in FY 2022 supports the enhancements of various maturing technologies including the Naval Aviation Training Next Virtual and Mixed Reality Trainers, Next Generation Threat System (NGTS), and Live, Virtual, Constructive (LVC) after action reporting capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC AD : PAX RIVER, MD	7.588	0.000		0.060	Nov 2020	0.139	Nov 2021	-		0.139	-	-	-
		Subtotal	7.588	0.000		0.060		0.139		-		0.139	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	Precise : LEXINGTON PARK, MD	0.696	0.187	Mar 2020	0.124	Mar 2021	0.145	Mar 2022	-		0.145	-	-	-
Program Management Support	WR	NAWCTSD : ORLANDO, FL	0.089	0.140	Dec 2019	0.177	Nov 2020	0.130	Nov 2021	-		0.130	-	-	-
Program Management Support	WR	NAWCAD : PAX RIVER, MD	0.000	0.007	Mar 2020	0.000		0.000		-		0.000	-	-	-
Travel	Allot	NAVAIR : PAX RIVER, MD	0.570	0.001	Nov 2019	0.010	Nov 2020	0.015	Nov 2021	-		0.015	-	-	-
Prior year Mgmt Sup no longer funded in the FYDP	Various	Various : Various	1.537	0.000		0.000		0.000		-		0.000	-	-	-
		Subtotal	2.892	0.335		0.311		0.290		-		0.290	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	52.132	1.675		1.581		1.606		-		1.606	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

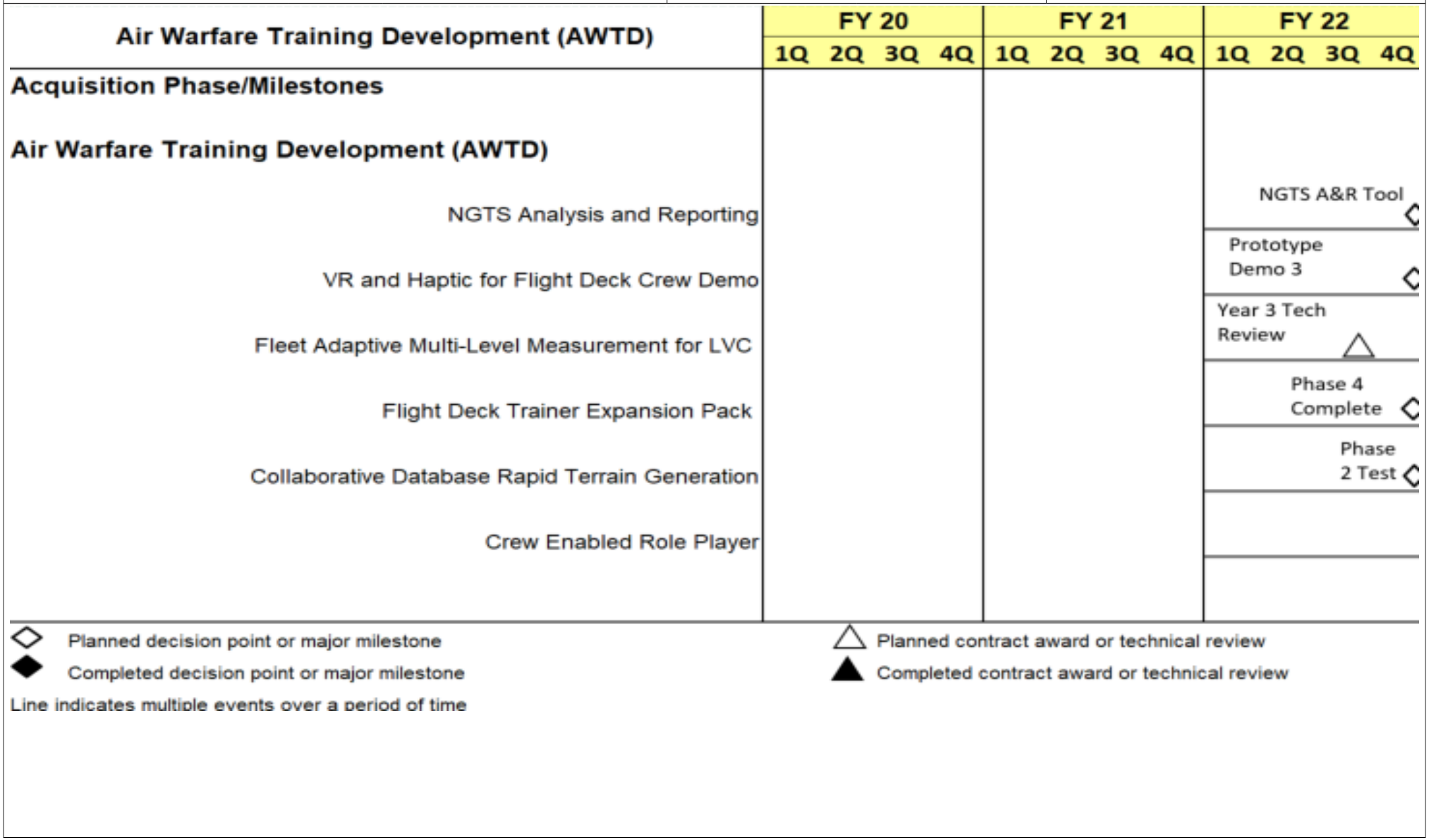

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

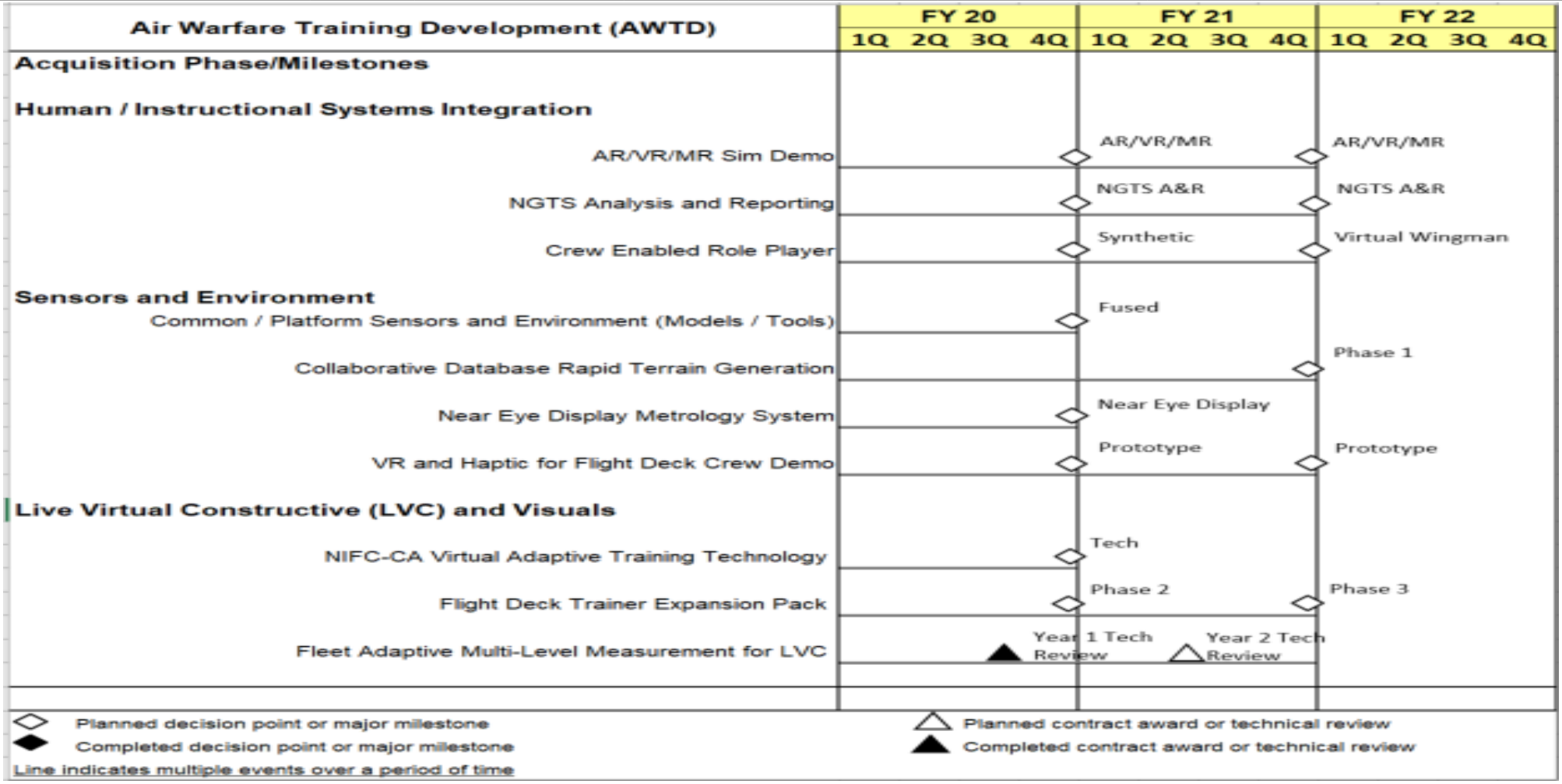

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

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	2022
Systems Development: Fleet Adaptive Multi-Level Measurement for LVC	1	2022	4	2022
Systems Development: Extended Reality Device Development and Evaluation	1	2022	4	2022
Systems Development: Training Analytics	1	2022	4	2022
Systems Development: Flight Deck Trainer Expansion Pack	1	2022	4	2022
Systems Development: Collaborative Database Rapid Terrain Generation	1	2022	4	2022
Systems Development: VR and Haptic for Flight Deck Crew Demo	1	2022	4	2022
Systems Development: Crew Enabled Role Player	1	2022	4	2022
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: Fleet Adaptive Multi-Level Measurement for LVC 4	3	2022	3	2022
Production Milestones: TH-57 VR Evaluation Complete	4	2022	4	2022
Production Milestones: Training Analytics Prototype Demo 1	4	2022	4	2022
Production Milestones: Flight Deck Training Expansion Pack - Phase 4	4	2022	4	2022
Production Milestones: VR and Haptic for Flight Deck Crew Prototype Demo 3	4	2022	4	2022
Human/Instructional Systems Integration				
Systems Development: Augmented Reality/ Virtual Reality/ Mixed Reality Sim Demo	1	2020	4	2021
Systems Development: NGTS Analysis and Reporting	1	2020	4	2021
Systems Development: Crew Enabled Role Player	1	2020	4	2021
Production Milestones: AR/VR/MR Sim Demo 2	4	2020	4	2020
Production Milestones: AR/VR/MR Sim Demo 3	4	2021	4	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
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: NGTS Analysis and Reporting - Phase 2	4	2020	4	2020
Production Milestones: NGTS Analysis and Reporting - Phase 3	4	2021	4	2021
Production Milestones: Crew Enabled Role Player - Synthetic Crew Member	4	2020	4	2020
Production Milestones: Crew Enabled Role Player - Virtual Wingman	4	2021	4	2021
Sensors and Environment				
Systems Development: Common/Platform Sensors and Environment (Models/Tools)	1	2020	4	2020
Systems Development: Collaborative Database Rapid Terrain Generation	1	2020	4	2021
Systems Development: Near Eye Display Metrology System	1	2020	4	2020
Systems Development: VR and Haptic for Flight Deck Crew Demo	1	2020	4	2021
Production Milestones: FUSED SENSORS UAS/Tier 5	4	2020	4	2020
Production Milestones: Near Eye Display Metrology System	4	2020	4	2020
Production Milestones: VR and Haptic for Flight Deck Crew Demo	4	2020	4	2020
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: NIFC-CA Virtual Adaptive Training Technology	1	2020	4	2020
Systems Development: Flight Deck Trainer Expansion Pack	1	2020	4	2021
Systems Development: Fleet Adaptive Multi-Level Measurement for LVC	1	2020	4	2021
Production Milestones: NIFC-CA Adaptive Training Tech 2	4	2020	4	2020
Production Milestones: Flight Deck Training Expansion Pack - Phase 2	4	2020	4	2020
Production Milestones: Flight Deck Training Expansion Pack - Phase 3	4	2021	4	2021
Production Milestones: Fleet Adaptive Multi-Level Measurement for LVC 2	3	2020	3	2020
Production Milestones: Fleet Adaptive Multi-Level Measurement for LVC 3	2	2021	2	2021

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy											Date: May 2021	
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 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
3093: *TACTS/LATR Replacement*	197.161	54.682	23.183	16.350	-	16.350	-	-	-	-	-	-
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 FY23 and will support Engineering and Developmental Testing events through FY24. 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Title: TACTS/LATR REPLACEMENT	54.682	23.183	16.350	0.000	16.350
Articles:	-	-	8	-	8
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.					
FY 2021 Plans: FY21 will continue Developmental Test-B. Systems Engineering Technical Review (SETR) events will be conducted, including a software Test Readiness Review (TRR), System Verification Review (SVR), Production Assessment Review (PAR), and Functional Configuration Audit (FCA). Research and development to address Large Area Tracking Range (LATR) capability gaps will begin in FY21. National Security Agency (NSA) Certification will continue in FY21. Milestone C for the Pods was accomplished in FY21 and Low-Rate Initial Production (LRIP) will begin, while development of the other system form factors continue.					
FY 2022 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
FY22 will achieve Initial Operational Capability (IOC) for Phase 1 for the Participant Airborne Subsystems. Developmental Test for Phase 1 will complete in FY22. National Security Agency (NSA) Certification will continue in FY22 and will include the completion of System Authority to Operate (ATO) for the Participant Airborne Subsystems. Research and development to address Large Area Tracking Range (LATR) capability gaps will continue through FY22. The development of the other system form factors continues. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The decrease of $6.833M from FY2021 to FY2022 in TCTS Increment II is due to the completion of development for Phase 1 for the PODs. Phase 1 moved into the production phase of acquisition life cycle for Low-Rate Initial Production (LRIP). The funding for production efforts are tied to OPN/4204: Weapons Range Support Equipment (WRSE) and APN/0725: Other Production Charges/Tactical Combat Training System (TCTS). Development for additional Participant Subsystems form factors will continue.					
Accomplishments/Planned Programs Subtotals	54.682	23.183	16.350	0.000	16.350

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPN/4204: *Weapons Range Support Equipment (WRSE)*	99.398	83.377	96.816	-	96.816	-	-	-	-	-	-
• APN/0725: *Other Production Charges/Tactical Combat Training System (TCTS)*	0.000	18.037	21.374	-	21.374	-	-	-	-	-	-

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/CPIF	COLLINS AEROSPACE : CEDAR RAPIDS, IA	108.064	44.263	Oct 2019	18.289	Nov 2020	13.396	Oct 2021	-		13.396	-	-	-
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	-	-	-
		Subtotal	118.965	44.263		18.289		13.396		-		13.396	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC-AD : PAX RIVER, MD	14.343	3.283	Nov 2019	1.039	Jan 2021	1.010	Nov 2021	-		1.010	-	-	-
Systems Engineering	C/CPFF	Precise : LEXINGTON PARK, MD	0.328	0.187	Dec 2019	0.100	Mar 2021	0.000		-		0.000	-	-	-
Systems Engineering	WR	NAWC-WD : China Lake, MD	0.000	0.846	Mar 2020	0.045	Mar 2021	0.000		-		0.000	-	-	-
Systems Engineering	WR	Various : Various	0.406	0.265	Nov 2019	0.084	Jan 2021	0.000		-		0.000	-	-	-
Logistics	WR	NAWC-AD : PAX RIVER, MD	1.901	1.165	Nov 2019	0.591	Jan 2021	0.500	Nov 2021	-		0.500	-	-	-
Logistics	WR	FRC SW : San Diego, CA	0.059	0.096	Nov 2019	0.189	Jan 2021	0.100	Nov 2021	-		0.100	-	-	-
Logistics	C/CPFF	Synectic Solutions, Inc. : LEXINGTON PARK, MD	0.505	0.178	Aug 2020	0.000		0.000		-		0.000	-	-	-
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	-	-	-
		Subtotal	47.531	6.020		2.048		1.610		-		1.610	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3093 / *TACTS/LATR Replacement*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWC-AD : PAX RIVER, MD	3.100	1.876	Nov 2019	0.835	Jan 2021	0.197	Nov 2021	-		0.197	-	-	-
Developmental Test & Evaluation	WR	NAWC-WD : China Lake, MD	0.010	0.083	Oct 2020	0.302	Feb 2021	0.000		-		0.000	-	-	-
Developmental Test & Evaluation	C/CPFF	BAH : McLean, VA	0.000	0.000		0.381	Mar 2021	0.381	Feb 2022	-		0.381	-	-	-
Developmental Test & Evaluation	WR	Various : Various	0.465	0.159	Nov 2019	0.369	Feb 2021	0.369	Nov 2021	-		0.369	-	-	-
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	-	-	-
		Subtotal	7.000	2.118		1.887		0.947		-		0.947	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prog Mgnt Sup	WR	NAWC-AD : PAX RIVER, MD	6.992	1.769	Nov 2019	0.710	Jan 2021	0.381	Nov 2021	-		0.381	-	-	-
Travel	Allot	NAVAIR : PAX RIVER, MD	0.127	0.027	Oct 2019	0.016	Oct 2020	0.016	Oct 2021	-		0.016	-	-	-
Prog Mgnt Sup	C/CPFF	Precise : LEXINGTON PARK, MD	0.487	0.235	Mar 2020	0.233	Mar 2021	0.000		-		0.000	-	-	-
Prog Mgnt Sup	WR	Various : Various	0.000	0.250	Nov 2019	0.000		0.000		-		0.000	-	-	-
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	-	-	-
		Subtotal	23.665	2.281		0.959		0.397		-		0.397	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy			Date: May 2021
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3093 / *TACTS/LATR Replacement*	

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	197.161	54.682		23.183		16.350		-		16.350	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

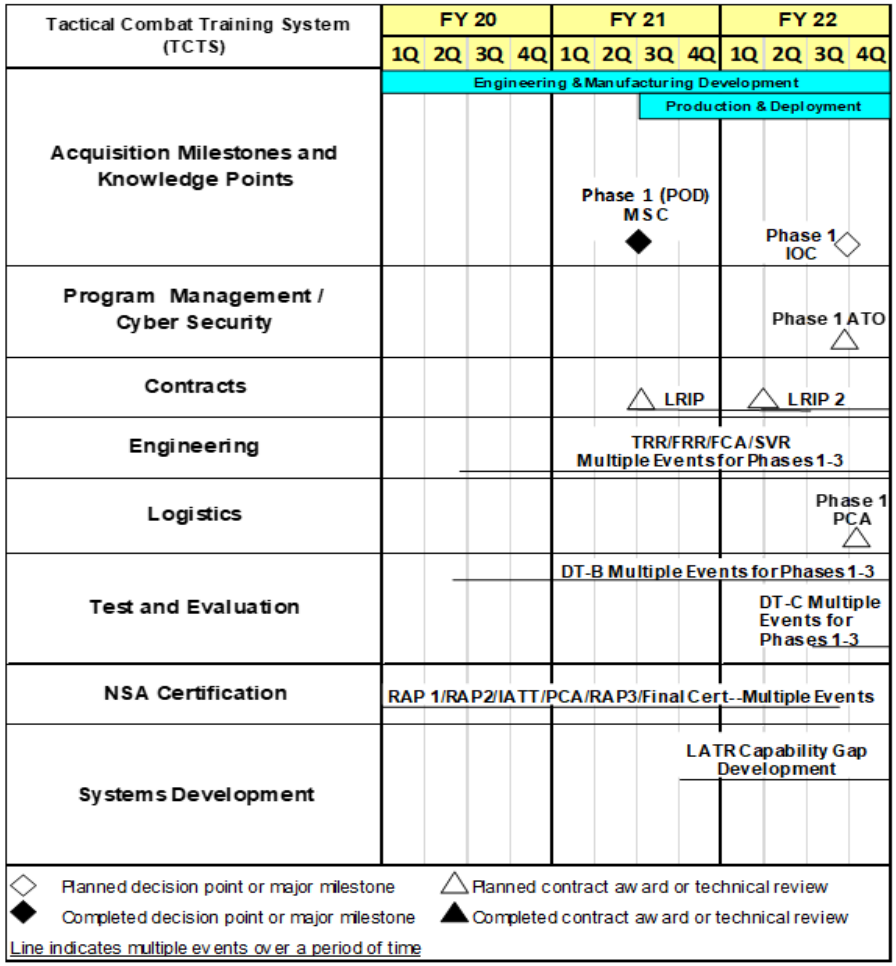

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

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	3	2022	3	2022
Program Management/Cyber Security: Phase 1 (POD) Authority to Operate	3	2022	3	2022
Contracts: LRIP 1	3	2021	3	2022
Contracts: LRIP 2	1	2022	4	2022
Engineering: Test Readiness Review / Flight Readiness Review / Functional Configuration Audit / System Verification Review	2	2020	4	2022
Logistics: Phase 1 (POD) Physical Configuration Audit	4	2022	4	2022
Test & Evaluation: Developmental Test B - Multiple Events for Phases 1-3	2	2020	4	2022
Test & Evaluation: Developmental Test C - Multiple Events for Phases 1-3	3	2022	4	2022
NSA Certification: RAP 1/RAP 2/IATT/PCA/RAP 3/Final Cert	1	2020	3	2022
Systems Development: Large Area Tracking Range (LATR) Capability Gap Development (Phase 3)	3	2021	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy											Date: May 2021	
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 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
3356: *High Fidelity Surface Trainers*	29.112	2.271	4.050	1.595	-	1.595	-	-	-	-	-	-
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Combined IAMD ASW Trainer (CIAT)	0.000	0.202	0.210	0.000	0.210
Articles:	-	-	-	-	-
FY 2021 Plans: Complete research and development for supporting Aegis baselines within CIAT architecture. Evaluate computing equipment alternatives for CIAT V2 configuration. Evaluate Operating Environment (OE) network configuration updates required for CIAT V2 configuration. Perform critical experiments as needed for CIAT V2. Update appropriate Subsystem Requirements Documents for CIAT V2.					
FY 2022 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
The transition to the single Stimulation/Simulation training environment and the software regression testing associated with this transition for CIAT ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY22 Increase associated with the transition to the single Stimulation/Simulation training environment and the software regression testing associated with this transition for CIAT. Funding needed in FY22 in support of Combat System Simulator/Stimulator (CS3) integration in the development of CIAT V2.4 that spans FY22 and FY23.					
Title: Air Defense Strike Group Facility ***Articles:*** ***FY 2021 Plans:*** Continue to research and develop VACSSim simulators and CEP Simulators to integrate within the ITF. This will include Baseline 9, Baseline 7.1 and Baseline 5 development and integration testing. The ITF capabilities are a requirement of the Naval Integrated Fire Control(NIFC) Flag Steering Committee and part of the CNO-directed Fleet Training Wholeness effort. ***FY 2022 Base Plans:*** N/A ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY22 decrease associated with the completion of the development phase of this program.	1.976 -	1.266 -	0.000 -	0.000 -	0.000 -
Title: Surface Training Readiness Management System (STRMS) ***Articles:*** ***FY 2021 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. Design, develop and deliver STRMS Capability Requirements Document (CRD) objectives that achieve a Tactical Action Officer (TAO), Officer of the Deck (OOD), Engineer Officer of the Watch (EOOW) STRMS capability demonstration	0.295 -	2.582 -	1.385 -	0.000 -	1.385 -

Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
in FY21. Communicate and collaborate in development of IT architecture and data integration supportive of STAVE, STRMS and My Navy Learning (MNL) requirements. ***FY 2022 Base 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 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 CRD defined User Cases. Communicate and collaborate in development of IT architecture and data integration supportive of STAVE, STRMS and MNL requirements. ***FY 2022 OCO Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** FY22 decrease due to Phase I capability development is built out and procurement of Phase I capability initiates.					
Accomplishments/Planned Programs Subtotals	2.271	4.050	1.595	0.000	1.595

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 2022 Navy			Date: May 2021
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 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SYSTEMS ENG	WR	NSWC DAHLGREN : DAHLGREN,VA	18.871	0.000		2.284	Nov 2020	1.020	Nov 2021	-		1.020	-	-	-
SYSTEMS ENG	WR	NSWC CARDEROCK : CARDEROCK, MD	6.320	0.000		0.000		0.075	Nov 2021	-		0.075	-	-	-
SYSTEMS ENG	WR	NUWC NEWPORT : NEWPORT, RI	2.076	0.000		0.000		0.000		-		0.000	-	-	-
SYSTEMS ENG	MIPR	U.S. ARMY SMDC : HUNTSVILLE, AL	0.147	0.000		0.000		0.000		-		0.000	-	-	-
SYSTEMS ENG	WR	NAWCTSD : ORLANDO, FL	1.698	0.000		0.000		0.000		-		0.000	-	-	-
SYSTEMS ENG	TBD	LOCKHEED MARTIN : TBD	0.000	1.976	Apr 2020	1.266	Mar 2021	0.000		-		0.000	-	-	-
SYSTEMS ENG	WR	NSWC, Corona : CORONA, CA	0.000	0.295	Jun 2020	0.500	Nov 2020	0.500	Nov 2021	-		0.500	-	-	-
SYSTEMS ENG	TBD	Office of Naval Research (ONR) : ARLINGTON, VA	0.000	0.000	Jul 2020	0.000		0.000		-		0.000	-	-	-
		Subtotal	29.112	2.271		4.050		1.595		-		1.595	-	-	N/A

Remarks

FY22 Program changes associated with the following:
1)Transition to the single Stimulation/Simulation training environment and the software regression testing associated with this transition for Combined Integrated Air and Missile Defense (IAMD) and Anti-Submarine Warfare (ASW) Trainer (CIAT)
2) Completion of the development phase of the Air Defense Strike Group Facility program.
3) The Surface Training Readiness Management System (STRMS) program decreases from FY21 to FY22 as Phase I capability development is built out and procurement of Phase I capability initiates.

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.112	2.271		4.050		1.595		-		1.595	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
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*

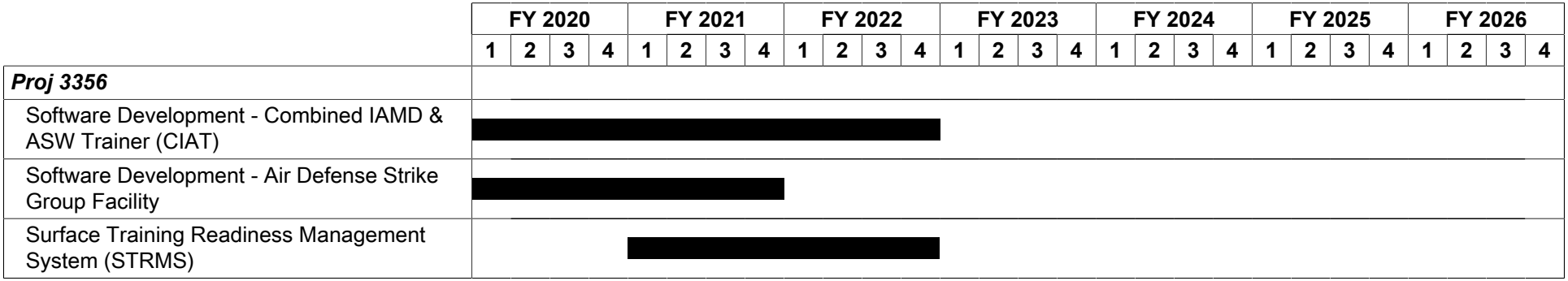

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3356 / *High Fidelity Surface Trainers*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3356				
Software Development - Combined IAMD & ASW Trainer (CIAT)	1	2020	4	2022
Software Development - Air Defense Strike Group Facility	1	2020	4	2021
Surface Training Readiness Management System (STRMS)	1	2021	4	2022