Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy												Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0603208N *I Training System Aircraft*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	29.553	17.490	16.945	12.798	-	12.798	15.722	4.184	3.429	3.487	0.000	103.608
3367: *Training Aircraft Updates*	29.553	17.490	16.945	12.798	-	12.798	15.722	4.184	3.429	3.487	0.000	103.608

A. Mission Description and Budget Item Justification

This program element provides for design, development, integration and test of various pre-production platform improvements for Naval Undergraduate Flight Training Systems which include T-45, T-6, TH-57, and T-44 aircraft. Continued development engineering for improvements in reliability, maintainability, safety and meeting Federal Aviation Administration (FAA) Next Generation Air Transportation System (NextGen) flight safety requirements are required to ensure maximum benefit is achieved to provide effective cost of ownership and availability of aircraft to meet Chief of Naval Air Training (CNATRA) student training requirements. Specific efforts include: T-45 Training System (TS) Required Avionics Sustainment Program (RASP) Phase I Automatic Dependent Surveillance-Broadcast (ADS-B) Out; T-6 Joint Primary Aircraft Training System (JPATS) Communication and Navigation System/Air Traffic Management (CNS/ATM); TH-57 Follow-On Training System; T-45, T-6, TH-57 and T-44 Training System Improvements, T-6 Flight Management System and T-45 Physiological Episode (PE) mitigation analysis.

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decision.

The FY 2019 funding request was reduced by $2.016 million to account for the availability of prior year execution balances.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	19.938	16.945	6.593	-	6.593
Current President's Budget	17.490	16.945	12.798	-	12.798
Total Adjustments	-2.448	0.000	6.205	-	6.205
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.448	0.000			
• Program Adjustments	0.000	0.000	6.297	-	6.297
• Rate/Misc Adjustments	0.000	0.000	-0.092	-	-0.092
• Congressional Directed Reductions Adjustments	-2.000	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0603208N *I Training System Aircraft*

Change Summary Explanation

FY 2019 adjustments include funding for Naval Aviation Physiological Episode Mitigation and Aviation Technical Corrections.

Technical: T45 Required Avionics Sustainment program (RASP)the FY 2019 funding request was reduced $2.016 million to account for the availability of prior year execution balances.

Schedule: Training System Improvement schedule updated T-6 System Safety Improvements to the Joint Primary Aircraft Training System (T-6) for Crash Survivable Cockpit Voice Recorder (CSCVR) and Controlled Flight Into Terrain (CFIT) Avoidance which will extend the program to FY 2020. Training System Improvement System Development schedule updated to extend through FY 2023.

Schedule: T-6B Flight Management System schedule to include a System Development Design Review and Hardware development. Initially this was a joint program with the United States Air Force, due to reprioritization this is now a United States Navy only program. Causing this to be a New Start in FY 2019.

Schedule: T-45 Physiological Episode Mitigation T-45 Acceptance Test in FY 2019.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0603208N / *Training System Aircraft*				Project (Number/Name) 3367 / *Training Aircraft Updates*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
3367: *Training Aircraft Updates*	29.553	17.490	16.945	12.798	-	12.798	15.722	4.184	3.429	3.487	0.000	103.608
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

The Federal Aviation Administration (FAA) has developed a plan to modernize the National Airspace System (NAS) in order to address the impact of air traffic growth in the United States. This multi-phase plan, called Next Generation Air Transportation System (NextGen) is intended to increase the air traffic capacity while at the same time improving safety and efficiency. In part, NextGen implements a capability called Performance Based Navigation (PBN) in which the aircraft's navigation performance capability will be a determining factor as to whether or not it can fly within specific airspace, certain air traffic routes or instrumental procedures. Also, NextGen transforms the NAS from a radar based system, with aircraft interrogation, to a satellite based system utilizing Automatic Dependent Surveillance-Broadcast (ADS-B) Out communication in order to transmit the aircraft's own position to the controllers and other ADS-B IN capable aircraft. PBN is an enabler for ADS-B functionality.

On May 28th, 2010 the FAA released DoT/FAA, 14 CFR Part 91: Automatic Dependent Surveillance-Broadcast (ADS-B) Out Performance Requirements to Support Air Traffic Control (ATC) Service Final Rule. This mandate stipulated that all aircraft required to have unrestricted access to operate in Classes A, B and C airspace; certain Class E airspace, and other specified airspace requiring ADS-B Out, must be in compliance with this regulation by January 1, 2020.

A. Mission Description and Budget Item Justification

The T-45 Training System (TS) Required Avionics Sustainment Program (RASP) Phase I ADS-B Out:

In order for the T-45TS to continue to have unrestricted access to the NAS through its projected end of service life, 2035, and avoid impacts to Chief of Naval Air Training (CNATRA) Strike Pilot and Naval Flight Officer (NFO) training, the T-45TS must develop, test and integrate the RASP Phase I ADS-B Out capability. This research and development effort consists of the minimum required capability increase necessary to enable ADS-B Out in the T-45, equipping 197 aircraft and 18 simulators to meet the January 1, 2020 FAA ADS-B Out mandate. Specifically, this includes the development, integration, test and certification of the replacement for the APX-100 Transponder (with associated control panel, personality module, compliant navigation source and data bus connectivity), the replacement of the Air Data Computer (ADC), and the integration of these components with the existing aircraft antennas and Mission Display Processor (MDP) Operational Flight Program (OFP) software.

The T-6 Joint Primary Aircraft Training System (JPATS) Communication and Navigation System/Air Traffic Management (CNS/ATM):

JPATS is a joint United States Navy (USN)/United States Air Force (USAF) Acquisition Program designed to replace the aging primary aircraft (T-34/T-37) fleet. Principle JPATS mission is primary training for entry-level Navy/Air Force student pilots, associated instructor pilots, and primary/intermediate training for USN Naval Flight Officers (NFO). JPATS includes the T-6 Texan II, which is a stepped tandem seat, commercially derived aircraft powered by a single Pratt & Whitney PT6A-68 turboprop engine. It serves as the aircraft component of the JPATS integrated primary pilot training system. In order for the T-6 A&B training aircraft to continue to have unrestricted access to the national air space through its projected end of service life and avoid impacts to CNATRA primary entry-level student pilots and NFO

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*

training, the T-6 program must develop, integrate, test and certify ADS-B Out capability for both the A&B models. This effort will consist of the minimum required capability increase necessary for ADS-B Out, enabling 295 aircraft and 34 simulators to meet the January 1, 2020 FAA mandate. This effort includes, but is not limited to, development, integration, test and certification.

The TH-57 Follow-On Training System:

The TH-57 Training System consists of TH-57B aircraft, TH-57C aircraft, and associated family of ground based training devices. The TH-57 Training System is experiencing obsolescence, diminishing manufacturing sources and material shortages, training capability gaps (as identified in the Capabilities based assessment Naval Aviation Undergraduate Flight Training), and increasingly expensive operating costs related to aging aircraft issues. This research and development effort will investigate alternatives for replacing the TH-57 training system and develop and validate the acquisition strategy for future procurement of the capability to continue to provide the fleet replacement squadrons with qualified and capable rotary-wing naval aviators to train on fleet platforms. This effort includes, but is not limited to, market research, requirements development, evaluation of acquisition strategies, evaluation of proposals, and testing of prototypes which are technically mature and ready for evaluation in the Engineering and Manufacturing Development phase.

Training System Improvements:

Efforts will provide for studies and analysis, design, development, integration and test of pre-production platform improvements for Naval Undergraduate Flight Training Systems, which will conduct engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decisions.

Flight Management System:

Efforts will provide for studies, design review and development for platform improvements for Naval Undergraduate Flight Training Systems for Flight Management System.

T-45 Physiological Episode (PE) Mitigation:

Efforts will provide for studies and development efforts to address mitigation of the T-45 physiological episodes.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: T45 Required Avionics Sustainment Program (RASP)	11.996	16.109	4.366	0.000	4.366
Articles:	-	-	-	-	-
Description: Funding supports development, integration, test, and certification of the Automatic Dependent Surveillance-Broadcast (ADS-B) Out capability in the T-45 Training System to comply with the January 1, 2020 Federal Aviation Administration ADS-B Out mandate.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: Continue the ADS-B Out design and integration efforts to support Critical Design Review (CDR) planned for 1Q FY 2018 and Test Readiness Review (TRR) in mid FY 2018 followed by laboratory integration testing. ***FY 2019 Base Plans:*** Flight Readiness Review (FRR) is planned to complete in Q1 FY 2019 followed by the commencement of on-aircraft developmental test in support of certification in Q4 FY 2019. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY 2019 funding request was reduced due to architectural decisions to upgrade or repurpose components at reduced costs.					
Title: T6 A/B Communication and Navigation System/Air Traffic Management (CNS/ATM) ***Articles:*** ***Description:*** Funding supports development, integration, test, and certification of the Automatic Dependent Surveillance-Broadcast (ADS-B) Out capability in the T-6 A/B Training System to comply with the January 1, 2020 Federal Aviation Administration ADS-B Out mandate. ***FY 2018 Plans:*** Continue USAF led T-6A development efforts with completion of test and evaluation and transition to procurement. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2018 to FY 2019 decrease is due to program no longer needing research and development in FY 2019. Program is currently being installed on aircraft.	2.990 -	0.556 -	0.000 -	0.000 -	0.000 -
Title: TH-57 Follow-On Training System ***Articles:***	1.552 -	0.000 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: The TH-57 Training System consists of TH-57B aircraft, TH-57C aircraft, and associated family of ground based training devices. The TH-57 Training System is experiencing obsolescence, diminishing manufacturing sources and material shortages, training capability gaps (as identified in the Capabilities Based Assessment Naval Aviation Undergraduate Flight Training), and increasingly expensive operating costs related to aging aircraft issues. This research and development effort will investigate alternatives for replacing the TH-57 training system and develop and validate the acquisition strategy for future procurement of the capability to continue to provide the fleet replacement squadrons with qualified and capable rotary-wing Naval Aviators. This effort includes, but is not limited to, market research, requirements development, evaluation of acquisition strategies, evaluation of proposals, and testing of prototypes. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A					
Title: Training System Improvements	0.952	0.280	0.101	0.000	0.101
Articles:	-	-	-	-	-
Description: Funding provides for design, development, integration and test of platform improvements for Naval Undergraduate Flight Training Systems, which include T-45, T-6, TH-57 and T-44 aircraft. ***FY 2018 Plans:*** Continue studies & development efforts for platform improvements for Naval Undergraduate Flight Training Systems, including but not limited to T-45 Physiological Episode mitigation, and joint efforts with Air Force for Joint Primary Aircraft Training System (T-6). ***FY 2019 Base Plans:*** Continue studies & development efforts for platform improvements for Naval Undergraduate Flight Training Systems, including the system safety improvements to the Joint Primary Aircraft Training System (T-6) for Crash Survivable Cockpit Voice Recorder (CSCVR) and Controlled Flight Into Terrain (CFIT) Avoidance. ***FY 2019 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease from FY 2018 to FY 2019 is to due to decrease in development efforts under training system improvement but increase in other development platform improvements					
Title: Naval Aviation Physiological Episode ***Articles:*** ***Description:*** Funding provides for design, development, integration and test of platform improvements for Naval Undergraduate Flight Training Systems to include Naval Aviation Physiological Episode (PE) Mitigation in the Training Aircrafts (T-45 and T-6). ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** Continue studies & development efforts for platform improvements for Naval Undergraduate Flight Training Systems, including T-45 Physiological Episode mitigation, and joint efforts with Air Force for Joint Primary Aircraft Training System (T-6). ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase from FY 2018 to FY 2019 is due to platform improvements to the T-45 for Physiological Episode mitigation.	0.000 -	0.000 -	6.100 -	0.000 -	6.100 -
Title: Flight Management System (FMS) ***Articles:*** ***Description:*** Funding provides for design, development, integration and test of platform improvements for Naval Undergraduate Flight Training Systems to the Joint Primary Aircraft Training System (T-6). ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:***	0.000 -	0.000 -	2.231 -	0.000 -	2.231 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Studies & development efforts for platform improvements for Naval Undergraduate Flight Training Systems, including Flight Management System and joint efforts with Air Force for Joint Primary Aircraft Training System (T-6). ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2018 to FY 2019 increase is due to the New Start of the Flight Management System development effort.					
Accomplishments/Planned Programs Subtotals	17.490	16.945	12.798	0.000	12.798

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• APN/0569: *T45 Series*	105.150	148.071	195.475	-	195.475	206.447	166.832	171.469	180.619	664.839	2,622.101
• APN/0571: *JT Primary Acft Trnr Sys (JPATS)*	10.732	27.007	27.644	-	27.644	22.181	30.018	30.787	31.407	40.440	263.872
• APN/0549: *Trainer Acft Series*	11.271	8.184	11.660	-	11.660	5.330	25.809	26.321	26.825	0.000	337.931

Remarks

D. Acquisition Strategy

T-45 Training System: Required Avionics Sustainment Program (RASP) Phase I is the first phase to equip the T-45 to operate in the Federal Aviation Administration's (FAA) Next Generation Air Transportation System (NextGen) airspace through the expected life of the T-45. The Research Development Test and Evaluation effort consists of a sole source Technology Maturation and Risk Reduction/ Engineering Manufacturing Development contract effort that awarded in FY 2016. Replacement kits for the Weapon Replaceable Assemblies (WRA) associated with the Automatic Dependent Surveillance-Broadcast (ADS-B) Out capability will be contracted through the Lead Systems Integrator for the Engineering Manufacturing Development phase through Test and Validation/Verification.

T6 Communication, Navigation, System/Air Traffic Management (CNS/ATM) and Avionics Upgrades for FAA Compliance are outside of the Joint Primary Aircraft Training System (JPATS) Major Defense Acquisition Program (MDAP) and will be established as a new Joint Acquisition Program with the United States Air Force. For the JPATS Avionics Upgrade for FAA Compliance effort, a competitive award will be the strategy for the T-6A air vehicles due to their federated design. The Navy is the lead for T-6B acquisition efforts and a sole-source strategy will be sought for the T-6B air vehicles due to proprietary hardware and software. Avionics in the T-6B are of an integrated design with proprietary hardware and software controlling input and output of navigation, communications, air data and other avionics information through an Integrated Avionics Computer (IAC). The CNS/ATM mandate requires integration into these systems in order to meet FAA Advisory Circular 20-165A Automatic Dependent Surveillance-Broadcast (ADS-B) Out system requirements and user capability requirements for flying in national airspace by 2020.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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Specifically, transponder and Global Positioning System (GPS) information that the ADS-B functions rely on are processed through proprietary software written to integrate with proprietary hardware designed by the same avionics manufacturer. A sole-source approach has been selected because the government does not own or have access to proprietary data to support development of hardware or software required to integrate ADS-B into the aircraft. Flight Management System and System Safety Improvement research, design and development will allow the T-6 to remain a viable aircraft for training the Fleet.

The TH-57 Follow-On Training System effort will be established to determine and implement the most cost efficient and effective path forward for providing Rotary Wing Naval Aviators to the Fleet Replacement Squadrons. Possible acquisition paths include direct procurement of a new commercial off-the-shelf training system, some combination of procurement and services contract, or a services contract to provide aircraft, simulators, and ground instructors. This effort follows up the Office of the Chief of Naval Operations (OPNAV) N98 sponsored Capabilities Based Assessment Naval Aviation Undergraduate Flight Training Capabilities Based Assessment and follow on Initial Capabilities Document that is in work.

Training System Improvements: Efforts under this category are expected to be limited to those efforts meeting thresholds under the abbreviated acquisition category.

E. Performance Metrics

T-45 Training System: Performance of the program will be measured via the Acquisition and Systems Engineering Technical Review (SETR) Process. Critical Design Review (CDR) is planned for 1st quarter FY 2018 with Flight Readiness Review (FRR) planned for 1st quarter FY 2019.

T-6 Joint Primary Aircraft Training System (JPATS): For T-6B National Airspace Compliance is an Abbreviated Acquisition Program with Acquisition Milestones utilizing systems engineering processes. Flight management system and other system safety improvements will allow the T-6 to maintain Joint requirements.

TH-57 Follow-On Training System: The follow-on system to the TH-57 will be a new Major Defense Acquisition Program (MDAP) with Acquisition Milestones utilizing the systems engineering processes. If the procurement is determined to be services based, it will be a Category I services Acquisition.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
T45 Product Development Cost	SS/CPFF	Boeing : St. Louis, MO	12.158	4.004	Sep 2017	9.439	Mar 2018	4.720	Mar 2019	-		4.720	4.300	34.621	34.621
T6 Product Development Cost	C/CPFF	Textron Aircraft Defense : Wichita, KS	3.870	0.065	Nov 2016	0.000		2.231	Jan 2019	-		2.231	6.900	13.066	13.066
		Subtotal	16.028	4.069		9.439		6.951		-		6.951	11.200	47.687	N/A

Remarks

T45: FY 2019 Development Costs support efforts for box and integration development, lab testing, aircraft test and certification prep.
T6: FY 2019 Development Costs support efforts for design and hardware development for Flight Management System and System Improvements.
T6: FY 2019 Development Costs support efforts for Critical Design Review (CDR), box and integration development, lab testing, aircraft test and certification prep.
T45: FY 2019 Development Costs support efforts for validation and verification of the final design.
T6: FY 2018 Development Costs support United States Air Force led efforts for T-6A aircraft.
T6: FY 2019 Increased for Aviation Technical Corrections funding didn't exist for this effort in FY2018.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
T45 Systems Engineering Support - EMD	WR	NAWCAD : Patuxent River, MD	4.696	1.324	Nov 2016	1.562	Nov 2017	1.200	Nov 2018	-		1.200	2.710	11.492	-
T45 Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	1.248	0.907	Nov 2016	1.072	Nov 2017	1.107	Nov 2018	-		1.107	2.020	6.354	-
T45 Engineering Study	SS/BOA	JHU : Laurel, MD	0.300	0.000		0.000		0.000		-		0.000	0.000	0.300	0.300
T6 Systems Engineering Support	WR	NAWCAD : Patuxent River, MD	1.670	0.244	Dec 2016	0.526	Mar 2018	0.000		-		0.000	0.000	2.440	-
T6 Systems Engineering Support	WR	NADEP : Jacksonville, FL	0.101	0.117	Dec 2016	0.250	Jan 2018	0.000		-		0.000	0.000	0.468	-
T6 Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	1.055	0.217	Dec 2016	0.000		0.000		-		0.000	0.000	1.272	-
TH57 Systems Engineering Support	WR	NAWCAD : Patuxent River, MD	0.000	0.603	Oct 2016	0.000		0.000		-		0.000	0.000	0.603	-
TH57 Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	0.000	0.252	Oct 2016	0.000		0.000		-		0.000	0.000	0.252	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TH57 Business Case/ Engineering Study	SS/BOA	JHU : Laurel, MD	0.000	0.423	Jun 2017	0.000		0.000		-		0.000	0.000	0.423	0.423
Training System Improvement Engineering Study T-6 Joint Study Efforts	MIPR	NAWCWD : China Lake, CA	0.000	0.164	Dec 2016	0.000		0.000		-		0.000	0.000	0.164	-
Training System Improvement T-6 Joint Study Efforts	MIPR	AFRL : Wright-Patterson AFB	0.000	0.104	May 2017	0.030	Nov 2017	0.069	Nov 2018	-		0.069	0.069	0.272	-
Training System Improvement T-45 VMTS Throttle Grip Engineering Analysis.	C/BA	Boeing : St. Louis, MO	0.000	0.700	Oct 2017	0.000		0.000		-		0.000	0.000	0.700	0.700
Training System Improvement T-44 Tail Section Fatigue Life Extension Study	C/FFP	Textron Aircraft Defense : Wichita, KS	0.000	0.142	Jun 2017	0.000		0.000		-		0.000	0.000	0.142	0.142
Training System Improvement T-45 Real-time Air Quality Sensor (RTAQS) Study	WR	NMRC : Silver Spring, MD	0.000	0.098	May 2017	0.000		0.000		-		0.000	0.000	0.098	-
Training System Improvement T-45 Real-time Air Quality Sensor (RTAQS) Study	MIPR	AFRL RH : Wright Patterson AFB, OH	0.000	0.328	May 2017	0.000		0.000		-		0.000	0.000	0.328	-
Training System Improvement T-45 Gas Chromatography Mass Spectrometry (GCMS) analysis	MIPR	NSWC Indian Head EOD Tech Div : Indian Head, MD	0.000	0.193	May 2017	0.000		0.000		-		0.000	0.000	0.193	-
Training System Improvement T-45 Analysis of Alternatives (AoA)	WR	NAWCAD : Patuxent River, MD	0.000	1.000	Aug 2017	0.000		0.000		-		0.000	0.000	1.000	-
		Subtotal	9.070	6.816		3.440		2.376		-		2.376	4.799	26.501	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Training System Improvement: Cost category added for T-45 Analysis of Alternatives (AoA) Study and T-45 Physiological Episodes (PE) mitigation efforts including Real-time Air Quality Sensor (RTAQS) study and Gas Chromatography Mass Spectrometry (GCMS) analysis.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
T45 Test & Certification	WR	NAWCAD : Patuxent River, MD	0.800	1.036	Nov 2016	0.656	Nov 2017	0.845	Nov 2018	-		0.845	0.203	3.540	-
T6 Test and Evaluation	C/CPFF	Textron Aircraft Defense : Wichita, KS	0.000	0.253	Dec 2016	0.000		0.000		-		0.000	0.000	0.253	0.253
TH57 Test and Evaluation	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
		Subtotal	0.800	1.289		0.656		0.845		-		0.845	0.203	3.793	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
T45 Project Management	Various	Various : Various	0.600	1.233	Nov 2016	1.324	Nov 2017	0.800	Nov 2018	-		0.800	2.065	6.022	-
T-45 Test Wing Maintenance	C/FFP	L-3 : Patuxent River, MD	0.830	1.613	Oct 2016	1.620	Oct 2017	1.616	Oct 2018	-		1.616	3.664	9.343	9.343
T45 PBTH Flight Hours	C/FFP	Rolls Royce : Indianapolis, IN	0.000	0.231	May 2017	0.125	May 2018	0.125	May 2019	-		0.125	0.000	0.481	0.481
T45 Travel	Various	NAVAIR : Patuxent River, MD	0.026	0.044	Oct 2016	0.045	Oct 2017	0.055	Oct 2018	-		0.055	0.067	0.237	-
T6 Project Management	Various	Various : Various	1.891	1.461	Nov 2016	0.000		0.000		-		0.000	0.000	3.352	-
T6 Test Wing Maintenance Parts	C/CPFF	DYNCORP International LLC : Patuxent River, MD	0.186	0.420	Oct 2016	0.266	Oct 2017	0.000		-		0.000	0.000	0.872	0.872

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / *Training System Aircraft*	Project (Number/Name) 3367 / *Training Aircraft Updates*

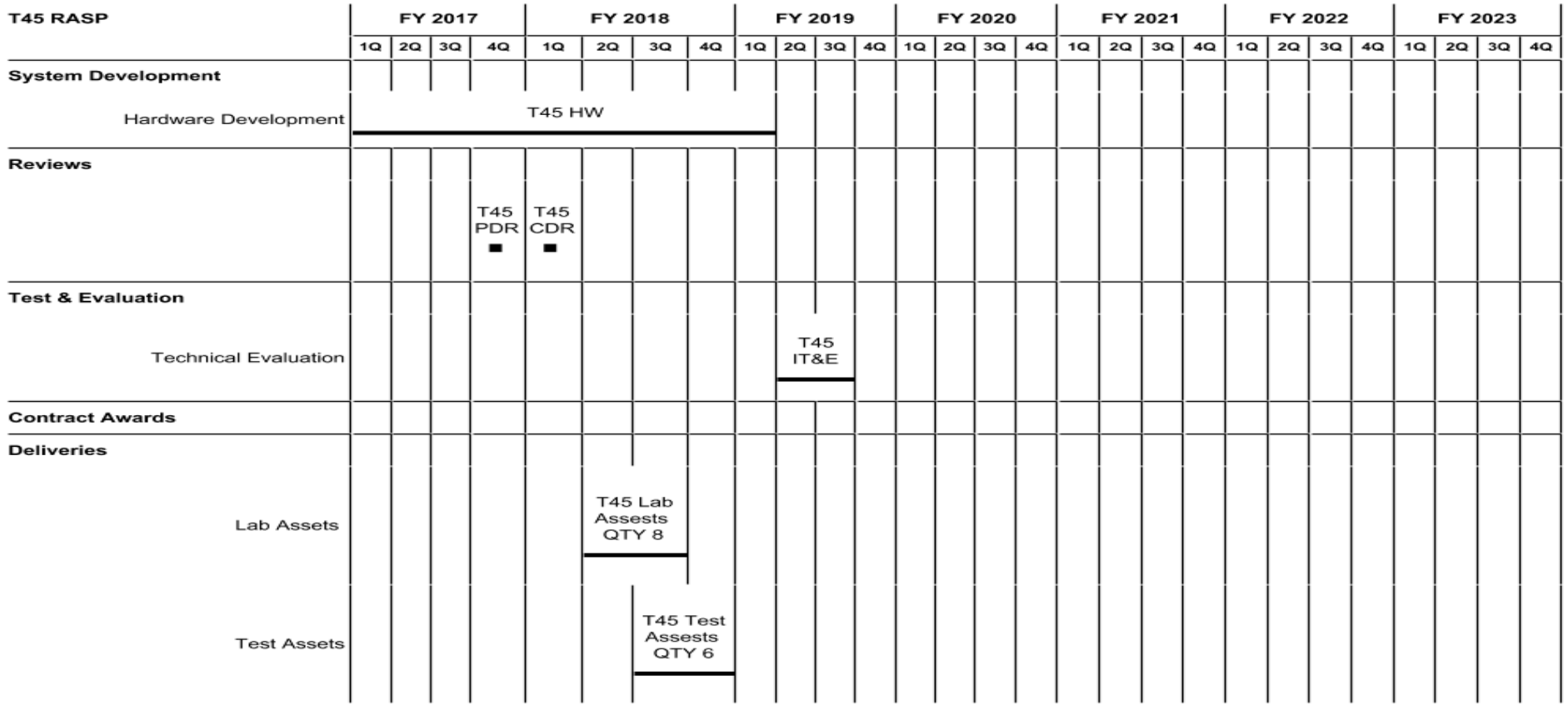
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
T6 Travel	Various	NAVAIR : Patuxent River, MD	0.122	0.040	Oct 2016	0.030	Oct 2017	0.030	Oct 2018	-		0.030	0.035	0.257	-
TH57 Project Management	Various	Various : Various	0.000	0.232	Oct 2016	0.000		0.000		-		0.000	0.290	0.522	-
TH57 Travel	Various	Various : Various	0.000	0.042	Oct 2016	0.000		0.000		-		0.000	0.000	0.042	-
Training System Improvement Project Management	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	2.607	2.607	-
Training System Improvement Travel	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.225	0.225	-
		Subtotal	3.655	5.316		3.410		2.626		-		2.626	8.953	23.960	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.553	17.490		16.945		12.798		-		12.798	25.155	101.941	N/A

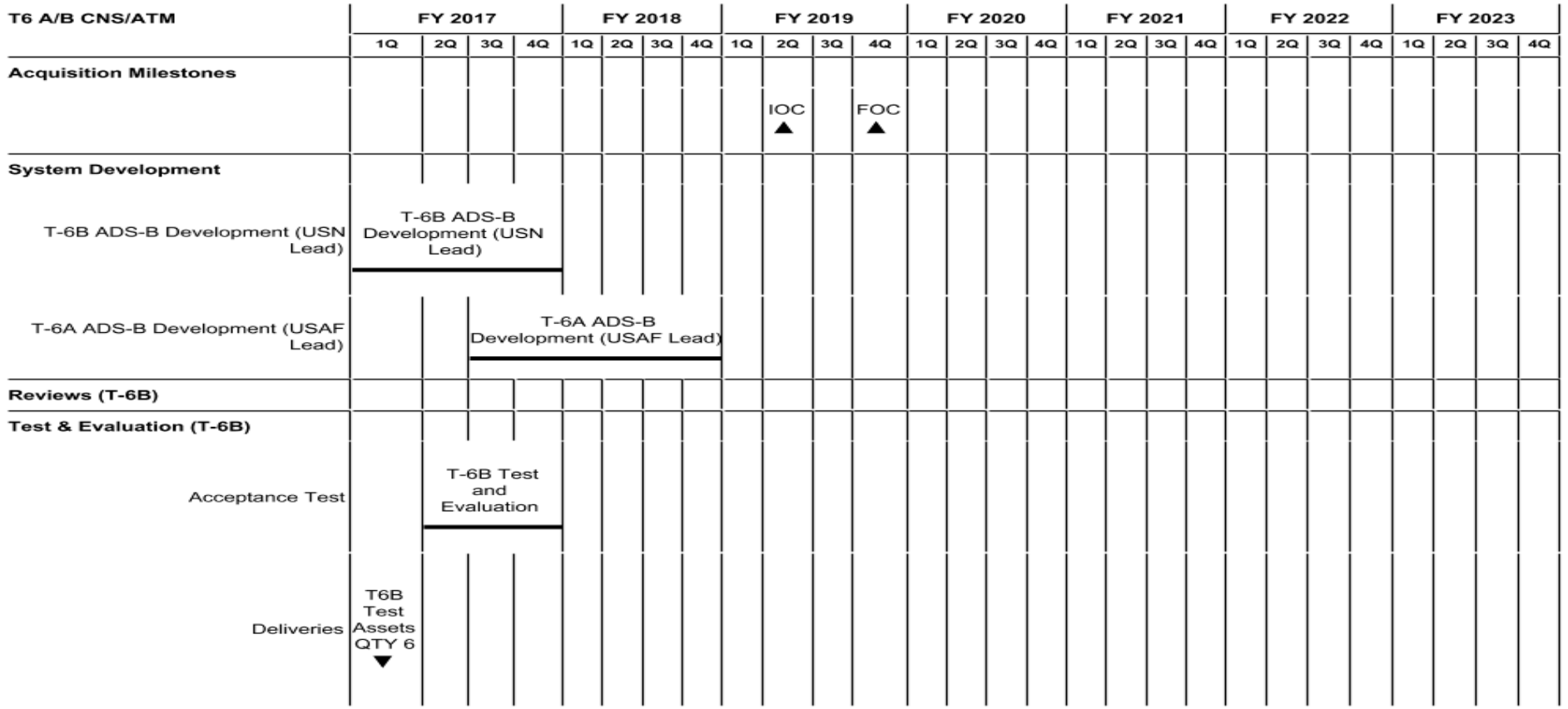
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*



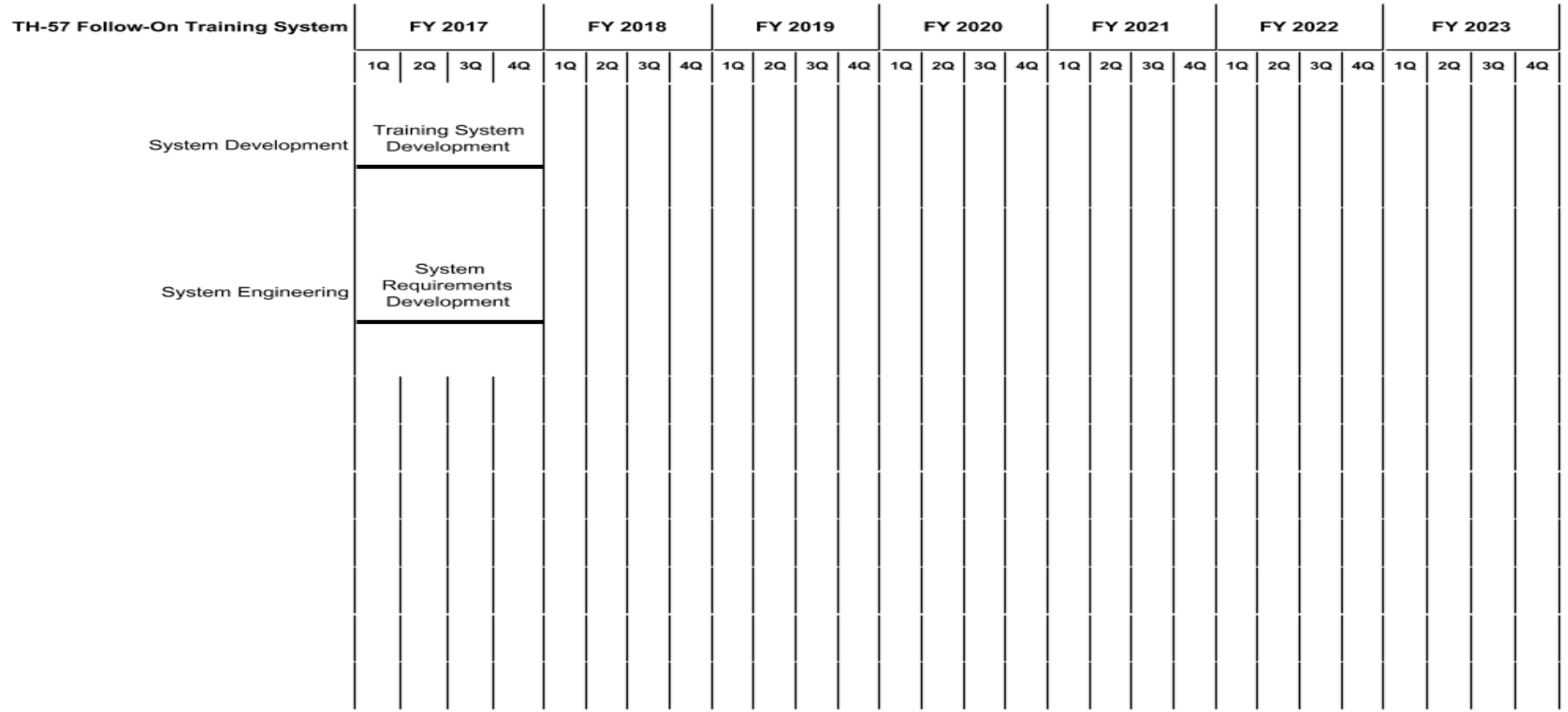
2019PB - 0603208N - 3367

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*



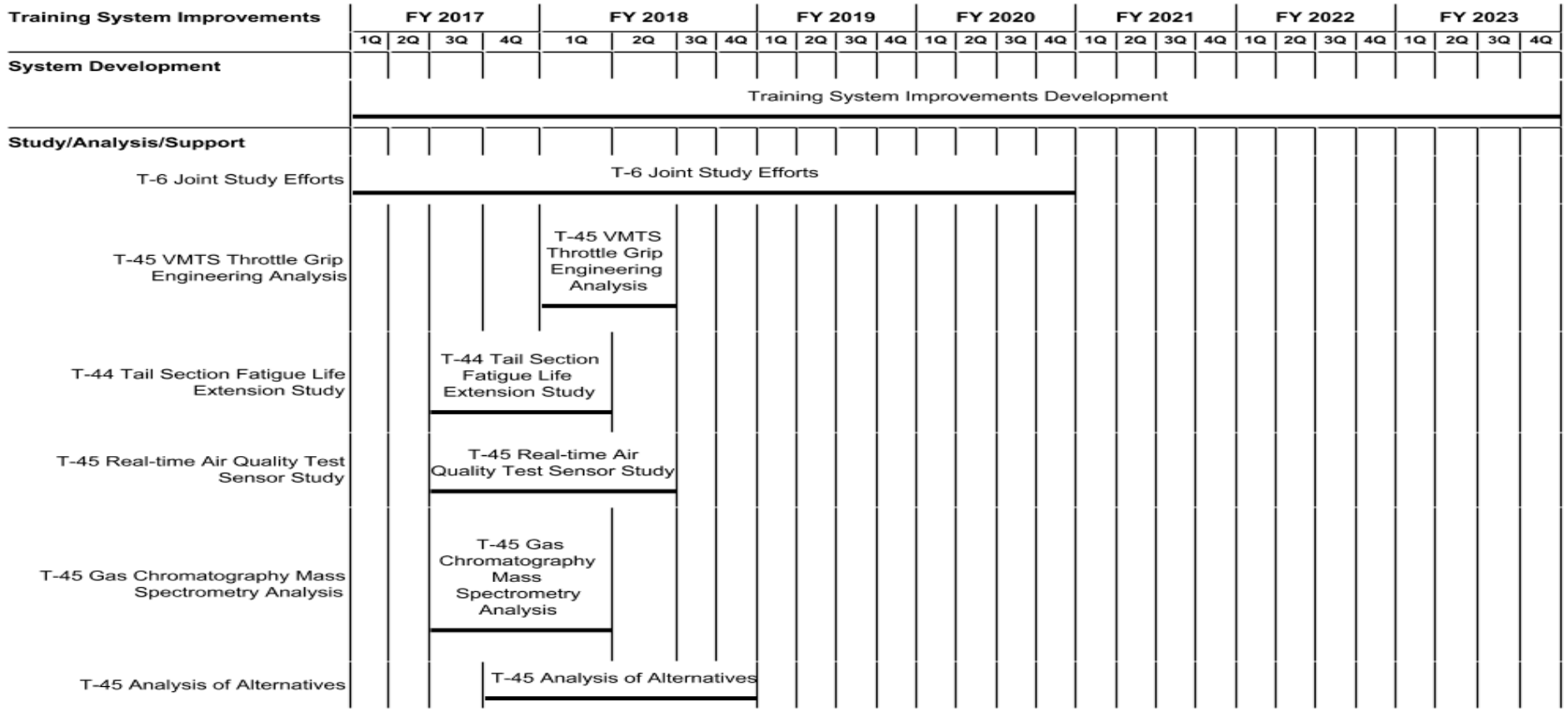
2019PB - 0603208N - 3367 Automatic Dependent Surveillance-Broadcast (ADS-B). T-6A ADS-B Development is Air Force led. T-6B ADS-B Development is Navy led. Reviews, T&E & Test Assets listed reflect T-6B Development efforts.

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*



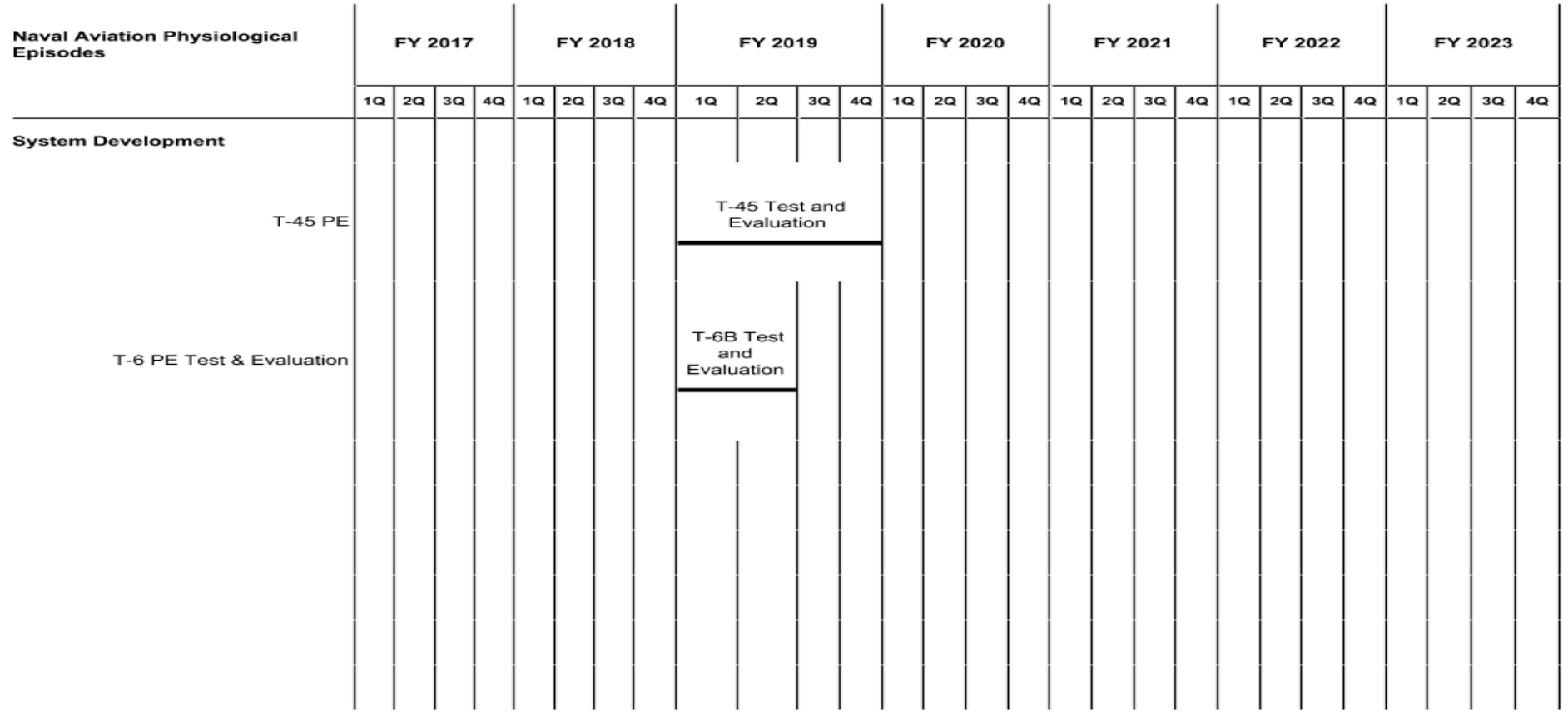
2019PB - 0603208N - 3367

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*



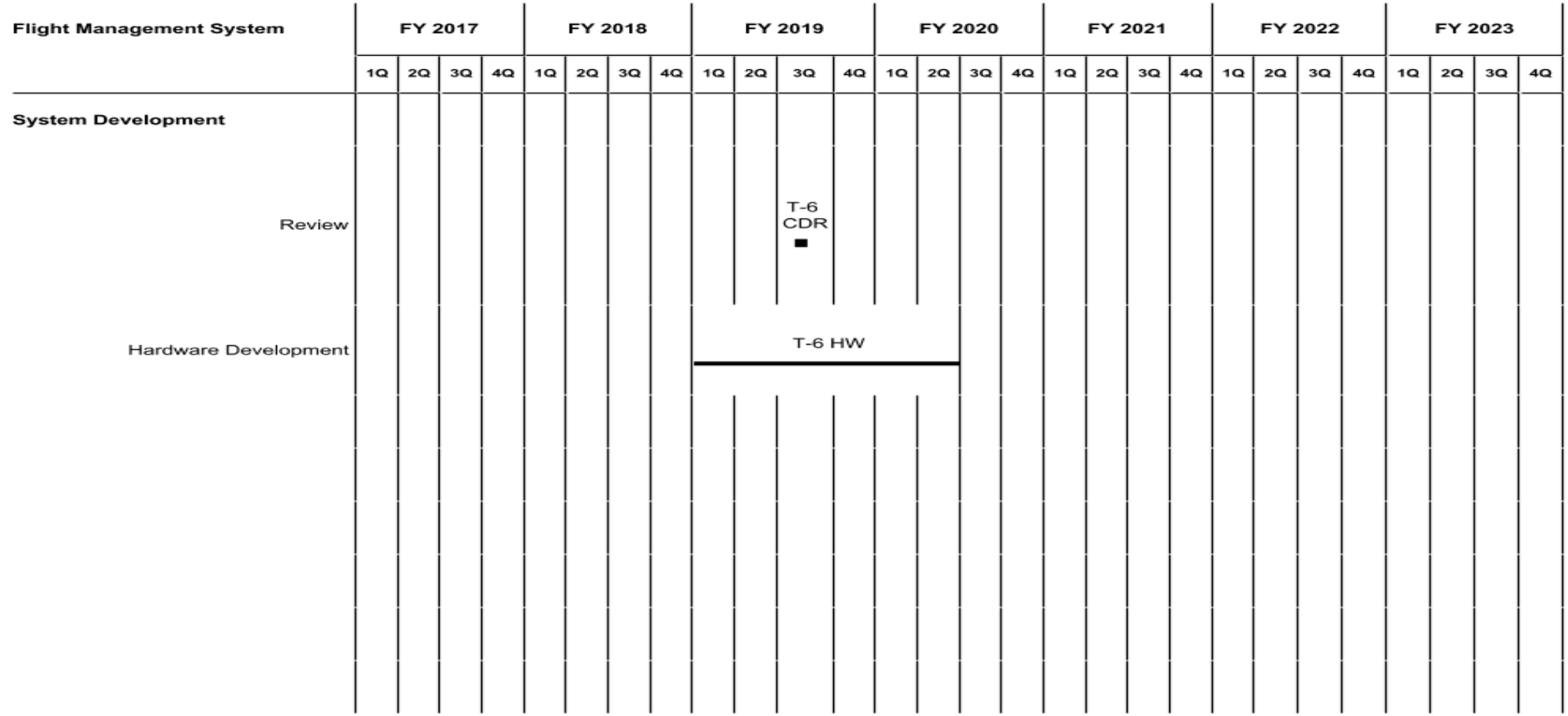
2019PB - 0603208N - 3367

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*



2019PB - 0603208N - 3367

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*



2019PB - 0603208N - 3367

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
T45 RASP				
System Development: Hardware Development: T45 Hardware Development	1	2017	1	2019
Reviews: T45 Preliminary Design Review	4	2017	4	2017
Reviews: T45 Critical Design Review	1	2018	1	2018
Test & Evaluation: Technical Evaluation: T45 Integrated Test & Evaluation	2	2019	3	2019
Deliveries: Lab Assets: T45 Lab Assets	2	2018	3	2018
Deliveries: Test Assets: T45 Test Assets	3	2018	4	2018
T6 A/B CNS/ATM				
Acquisition Milestones: Initial Operational Capability	2	2019	2	2019
Acquisition Milestones: Full Operational Capability	4	2019	4	2019
System Development: T-6B ADS-B Development (USN Lead): T-6B ADS-B Development	1	2017	4	2017
System Development: T-6A ADS-B Development (USAF Lead): T-6A ADS-B Development	3	2017	4	2018
Test & Evaluation (T-6B): Acceptance Test: T-6B Acceptance Test	2	2017	4	2017
Test & Evaluation (T-6B): Deliveries: Test Assets	1	2017	1	2017
TH-57 Follow-On Training System				
System Development: Follow-On Training System Development	1	2017	4	2017
System Engineering: Follow-On Training System Requirements Development	1	2017	4	2017
Training System Improvements				
System Development: Training System Improvements Development	1	2017	4	2023
Study/Analysis/Support: T-6 Joint Study Efforts: T-6 Joint Study Efforts	1	2017	4	2020
Study/Analysis/Support: T-45 VMTS Throttle Grip Engineering Analysis: T-45 VMTS Throttle Grip Engineering Analysis	1	2018	2	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0603208N / *Training System Aircraft*	**Project (Number/Name)** 3367 / *Training Aircraft Updates*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Study/Analysis/Support: T-44 Tail Section Fatigue Life Extension Study: T-44 Tail Section Fatigue Life Extension Study	3	2017	1	2018
Study/Analysis/Support: T-45 Real-time Air Quality Test Sensor Study: T-45 Real-time Air Quality Test Sensor Study	3	2017	2	2018
Study/Analysis/Support: T-45 Gas Chromatography Mass Spectrometry Analysis: T-45 Gas Chromatography Mass Spectrometry Analysis	3	2017	1	2018
Study/Analysis/Support: T-45 Analysis of Alternatives: T-45 Analysis of Alternatives	4	2017	4	2018
Naval Aviation Physiological Episodes				
System Development: T-45 PE: T-45 Acceptance Test	1	2019	4	2019
System Development: T-6 PE Test & Evaluation: T-6 Acceptance Test	1	2019	2	2019
Flight Management System				
System Development: Review: Design Review	3	2019	3	2019
System Development: Hardware Development: T-6 Hardware Development	1	2019	2	2020