Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy											Date: April 2022	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0205633N *I Aviation Improvements*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	1,810.758	122.884	144.621	130.450	-	130.450	137.960	128.476	128.668	130.273	Continuing	Continuing
0601: *Acft Handling & Service Equip*	51.932	1.371	2.323	2.617	-	2.617	2.387	2.313	2.329	2.404	Continuing	Continuing
0852: *Consolidated Auto Support System*	184.829	11.713	20.327	9.062	-	9.062	9.823	9.170	8.911	9.003	Continuing	Continuing
1041: *Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)*	68.081	3.211	3.164	6.959	-	6.959	6.784	5.142	4.545	4.014	Continuing	Continuing
1355: *Propulsion and Power Component Improvement Program*	1,433.602	106.239	101.313	111.812	-	111.812	118.966	111.851	112.883	114.852	Continuing	Continuing
2269: *Expeditionary Airfield Improvements*	72.314	0.350	0.494	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	73.158
9999: *Congressional Adds*	0.000	0.000	17.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	17.000

A. Mission Description and Budget Item Justification

Project 0601 - Common Ground Equipment is a Naval Aviation Project to apply new technology to common support equipment necessary to support multiple aircraft.

Project 0852: Consolidated Automated Support System (CASS) is a standardized Automated Test Equipment (ATE) with computer assisted, multi-function capabilities to support the maintenance of aircraft weapons systems and missiles. Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) testers another type of standardized Automated Test Equipment with computer assisted, multi-function capabilities to support the maintenance of aircraft weapons systems. ATE host, and their Test Program Sets, along with associated ancillary are considered Automatic Test Systems (ATS). Line adjusted from "eCASS Modernization", to "ATS Modernization" to reflect inclusion of Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) testers.

Project 1041 - Aircraft Equipment Reliability/Maintainability Improvement Program is the only Navy program that provides engineering support for in-service out-of-production aircraft equipment, and provides increased readiness at reduced operational and support cost.

Project 1355 - Aircraft Engine Component Improvement Program develops reliability and maintainability and safety enhancements for in-service Navy aircraft engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, fuel systems, fuels, and lubricants.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy	Date: April 2022
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205633N *I Aviation Improvements*

Project 2269 - The Expeditionary Airfields (EAF) program designs, develops, tests and fields Airfield Light Systems to replace existing obsolete legacy EAF lighting system.

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

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	126.371	132.486	0.000	-	0.000
Current President's Budget	122.884	144.621	130.450	-	130.450
Total Adjustments	-3.487	12.135	130.450	-	130.450
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-4.865			
• Congressional Rescissions	-	-			
• Congressional Adds	-	17.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.143	0.000			
• SBIR/STTR Transfer	-3.630	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	130.450	-	130.450

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 9999: *Congressional Adds*		
Congressional Add: *Additive manufacturing for metals affordability*	0.000	7.000
Congressional Add: *FOD mitigation integration*	0.000	10.000
Congressional Add Subtotals for Project: 9999	0.000	17.000
Congressional Add Totals for all Projects	0.000	17.000

Change Summary Explanation

Funding:

FY 2022 has changed since the previous President's Budget Submission due to the Congressional Adds detailed above and a $4.865M Congressional reduction for historical underexecution.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy	Date: April 2022
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205633N *I Aviation Improvements*

Project 0852: FY 2023 funding request was reduced by $1.000 million to account for the availability of prior year execution balances.

Project 1355: FY 2023 funding request was reduced by $2.000 million to account for the availability of prior year execution balances.

Schedule:

Project 0601: PEMA and SPECS schedule change to show merge of PEMA and SPECS both into AMAS.

Project 2269: Design maturity with the Lead System Integrator (LSI) for the Sustainment Lighting System (SLS) program was re-scoped in FY19 and out to focus on the development of a new Light Emitting Diode (LED) CAT I Visual Flight Rules (VFR) Approach Light System and a Night Vision Device (NVD) Compatible Runway Light System. Schedule milestones were updated for the following: LED CATI Instrumented Flight Rules (IFR)/Visual Flight Rules (VFR) Approach Light System: MS C moved from 4Q FY21 to 2Q FY22; IOC moved from 1Q FY22 to 2Q FY23; Systems Engineering end date moved from 4Q FY21 to 2Q FY22; Production Readiness Review moved from 2Q FY21 to 1Q FY22; Lot 1 Delivery moved from 1Q FY21 to 2Q FY23. CDR moved from 3Q FY21 to 2Q FY21; TRR moved 4Q FY21 to 3Q FY21.

Technical:

Project 0601: Carrier/Amphibious Assault Ship Crash Crane (CV/AACC) contract modified to incorporate a design change that significantly reduces technical risks associated with shock testing requirements. The contract modification includes removing the smaller D ring tie downs, in favor of a larger D-ring. These technical changes mitigate the program's significant technical risks associated with the shipboard shock testing.

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

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 0601 / *Acft Handling & Service Equip*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
0601: *Acft Handling & Service Equip*	51.932	1.371	2.323	2.617	-	2.617	2.387	2.313	2.329	2.404	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Common Ground Equipment is a Naval Aviation project to apply new technology to common support equipment necessary to support multiple systems/aircraft within the Navy. The common support equipment items developed with this budget are briefed to the Air Force, Army and Coast Guard for possible use in joint procurement in the production phase.

Crash cranes are used for lifting and moving disabled aircraft on CVN and L-Class ship flight decks. The Carrier/Amphibious Assault Ship Crash Crane (CV/AACC) will be a diesel powered lift system performing crash and salvage functions on board CVN and L-class ships. The CV/AACC will replace the legacy A/S32A-35A, Carrier Vessel Crash Crane (CVCC) and the A/S32A-36A Amphibious Assault Crash Crane (AACC). The CV/AACC will support all aircraft on CVN and L-Class ships.

Recent transition has merged existing PEMA and SPECS project lines under Aviation Maintenance Advancement Solutions (AMAS). Funding supports the evaluation, testing and integration to develop Portable Electronic Maintenance Aids (PEMA) Commercial solution for portable device deployments across the Naval Aviation Enterprise. PEMA is a portable device utilized by maintainers with the implementation of digital maintenance capabilities (digital publications, Interactive Electronic Technical Manuals, Internet Protocol based data uploads, Binary digit data downloads, automated diagnostics, and planeside Naval Aviation Logistics Command/ Management Information System. PEMAs are mandatory display devices supporting modern day Automated Maintenance Environment implemented for weapon systems.

Future Readiness Initiative to Develop Standard PEMA Cyber Solution (SPECS) architecture for all Portable Electronic Maintenance Aids (PEMA)s to standardize software across NAE, leverage existing enterprise tools, and to correct cyber shortfalls identified by the Cyber Warfare Detachment (CWD). A Cyber Risk Assessment (CRA) identified vulnerabilities on the Portable Electronic Maintenance Aid system that could be exploited to threaten U.S. capabilities. A new software image and configuration management process has been identified to mitigate the top 60% of identified risk groups and 100% of penetration test findings from the CRA.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Aviation Maintenance Advancement Solutions (AMAS)	0.000	1.048	2.344	0.000	2.344
Articles:	-	-	-	-	-
Description: Aviation Maintenance Advancement Solutions (AMAS) has formed by the merge of The Portable Electronic Maintenance Aid (PEMA)and Standard PEMA Cyber Solution (SPECS). Portable Electronic Maintenance Aid (PEMA) funding supports the evaluation, testing and integration to develop PEMA Commercial Off-the-Shelf (COTS) solution for portable device deployments across the Naval Aviation Enterprise. PEMAs					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
are portable devices utilized by maintainers with the implementation of digital maintenance capabilities (digital publications, Interactive Electronic Technical Manuals, Internet Protocol based data uploads, Binary digit data downloads, automated diagnostics, and planeside Naval Aviation Logistic Command Management Information System. PEMAs are a mandatory display device supporting modern day Automated Maintenance Environment implemented for weapon systems. Cyber Risk Assessment (CRA) has identified cyber vulnerabilities that could be exploited to threaten US fighting forces. Implementation of mandatory Cyber Security (CS) requirements would decrease the CS attack surface. Develop Standard PEMA Cyber Solution (SPECS) architecture for all PEMAs to standardize software across NAE, leverage existing enterprise tools, and to correct cyber shortfalls identified by the Cyber Warfare Detachment (CWD) Cyber Risk Assessment (CRA). Implement CS enhancements to reduce risk from cyber-attack. ***FY 2022 Plans:*** Evaluate, test and integrate evolving COTS solutions. Conduct test & evaluation of T/M/S peculiar software/ hardware requirements and network connectivity compliance across the GIG prior to deployment to the fleet by a yearly release cycle. Develop standard PEMA Cyber Solution (SPECS) core software enhancements to correct cyber shortfalls and develop/integrate T/M/S unique applications to be hosted on a common image. ***FY 2023 Base Plans:*** Evaluate, test and integrate evolving COTS solutions. Conduct test & evaluation of T/M/S peculiar software/ hardware requirements and network connectivity compliance across the GIG prior to deployment to the fleet by a yearly release cycle. Develop standard PEMA Cyber Solution (SPECS) core software enhancements to correct cyber shortfalls and develop/integrate T/M/S unique applications hosted on a common image. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase due to Testing for next AMAS hardware solution in FY23.					
Title: Carrier/Amphibious Assault Ship Crash Crane (CV/AACC)	1.371	1.275	0.273	0.000	0.273
Articles:	-	-	-	-	-
Description: Carrier/Amphibious Assault Ship Crash Cranes (CV/AACC) are required to remove damaged aircraft from the flight deck. Legacy crash cranes were designed in the late 1980's, major systems are beginning to experience the obsolescence of spare parts and are in need of updating. R&D resources are needed to					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
identify not only replacements, but new technologies, which can increase the reliability and maintainability of this flight ops critical piece of equipment. Systems updates would include the engine/generator and electrical updates to the motor drive/control system. An exploration of power sources other than diesel engines would be considered and a corrosion resistant boom. ***FY 2022 Plans:*** Complete DT-B1 testing, continue DT-C1 testing, and continue development of logistics deliverables. ***FY 2023 Base Plans:*** Continue DT-C1 testing, prepare and initiate Full Rate Production, and continue development of logistics deliverables. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Several test events on the Carrier Crash & Salvage Crane (CCSC) and Amphibious Crash and Salvage Crane (ACSC) LRIPs originally planned for FY23 have been pulled into FY22 to be performed on an Engineering Development Model (EDM) and therefore decreased the amount of funding required in FY23.					
Accomplishments/Planned Programs Subtotals	1.371	2.323	2.617	0.000	2.617

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APN/0705: *Ground Support Equipment - CSE/ICP*	79.774	84.118	77.493	-	77.493	78.823	80.351	81.878	83.655	Continuing	Continuing
• OPN/4268: *Aviation Support Equipment - PEMA*	13.319	12.952	17.233	-	17.233	17.555	17.971	18.574	18.910	Continuing	Continuing

Remarks

D. Acquisition Strategy

Common Ground Equipment: This is a non ACAT program. Field activities propose tentative projects. Internal panel merits and selects projects. Field activities develop projects and submit results. Operational Advisory Group process selects projects to transition to procurement.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

Carrier/Amphibious Assault Ship Crash Crane (CV/AACC): Market research results indicated multiple companies have the potential to develop (modified COTS) and manufacture crash cranes that meet the specification requirements, inclusive of the lift requirements and unique shipboard environmental requirements including shock, vibration, Electromagnetic Interference (EMI) and ship motion characteristics. The program entered the acquisition process at Milestone B (MS-B). A best value, competitive, Firm Fixed Price (FFP) Indefinite Delivery, Indefinite Quantity (IDIQ) contract was awarded 7/2019.

The selected contractor will design, develop, manufacture, test, and deliver one (1) CCSCs and one (1) ACSC Engineering Development Model (EDM), along with all required technical data and logistics documentation. Following MS C approval, one (1) CCSC and one (1) ACSC LRIP will be procured to support DT-C1 testing and production. Following FRPDR approval, 25 additional production units consisting of 13 CCSCs and 12 ACSCs will be procured using priced delivery orders which will meet the total fleet inventory of 27 units.

Recent transition has merged existing PEMA and SPECS project lines under Aviation Maintenance Advancement Solutions (AMAS). The management approach includes the Program Management Office residing at NAVAIR with Milestone Decision Authority delegated to the Naval Air Systems Command Chief Information Officer. The evolutionary development approach will be used to execute requirements. Contracting for the prime integrator will be via competitively awarded Indefinite Delivery/ Indefinite Quantity contracts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 0601 / *Acft Handling & Service Equip*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Dev - CV	C/FFP	Allied Systems Company : Sherwood, OR	8.295	1.312	Nov 2020	0.000		0.000		-		0.000	0.000	9.607	9.607
Systems Engineering - CV	WR	NAWCAD : LAKEHURST, NJ	5.024	0.000	Nov 2020	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering - AMAS	C/IDIQ	DNI : Oklahoma City, OK	2.735	0.000	Dec 2020	0.321	Dec 2021	1.980	Dec 2022	-		1.980	0.000	5.036	5.036
Prior year Prod Dev cost no longer funded in the FYDP	Various	Various : Various	19.692	0.000		0.000		0.000		-		0.000	0.000	19.692	-
		Subtotal	35.746	1.312		0.321		1.980		-		1.980	Continuing	Continuing	N/A

Remarks

Systems Engineering - AMAS - Delaware Nation Industries (DNI)

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior year Support cost no longer funded in the FYDP	Various	Various : Various	8.857	0.000		0.000		0.000		-		0.000	0.000	8.857	-
		Subtotal	8.857	0.000		0.000		0.000		-		0.000	0.000	8.857	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C&G Test - CV	WR	NAWCAD : PAX RIVER, MD	1.074	0.059	Nov 2020	1.275	Dec 2021	0.273	Dec 2022	-		0.273	Continuing	Continuing	Continuing
Operational T & E - AMAS	WR	NAWCAD : PAX RIVER, MD	2.391	0.000		0.000		0.000		-		0.000	0.000	2.391	-
Operational T & E - AMAS	WR	FRC SE : Jacksonville, FL	2.945	0.000		0.727	Nov 2021	0.364	Dec 2022	-		0.364	0.000	4.036	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 0601 / *Acft Handling & Service Equip*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior year T&E cost no longer funded in the FYDP	Various	Various : Various	0.919	0.000		0.000		0.000		-		0.000	0.000	0.919	-
		Subtotal	7.329	0.059		2.002		0.637		-		0.637	Continuing	Continuing	N/A

Remarks

0601 - Funding Shift from AMAS to CV in order to fund crash crane shock testing effort.

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	51.932	1.371		2.323		2.617		-		2.617	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

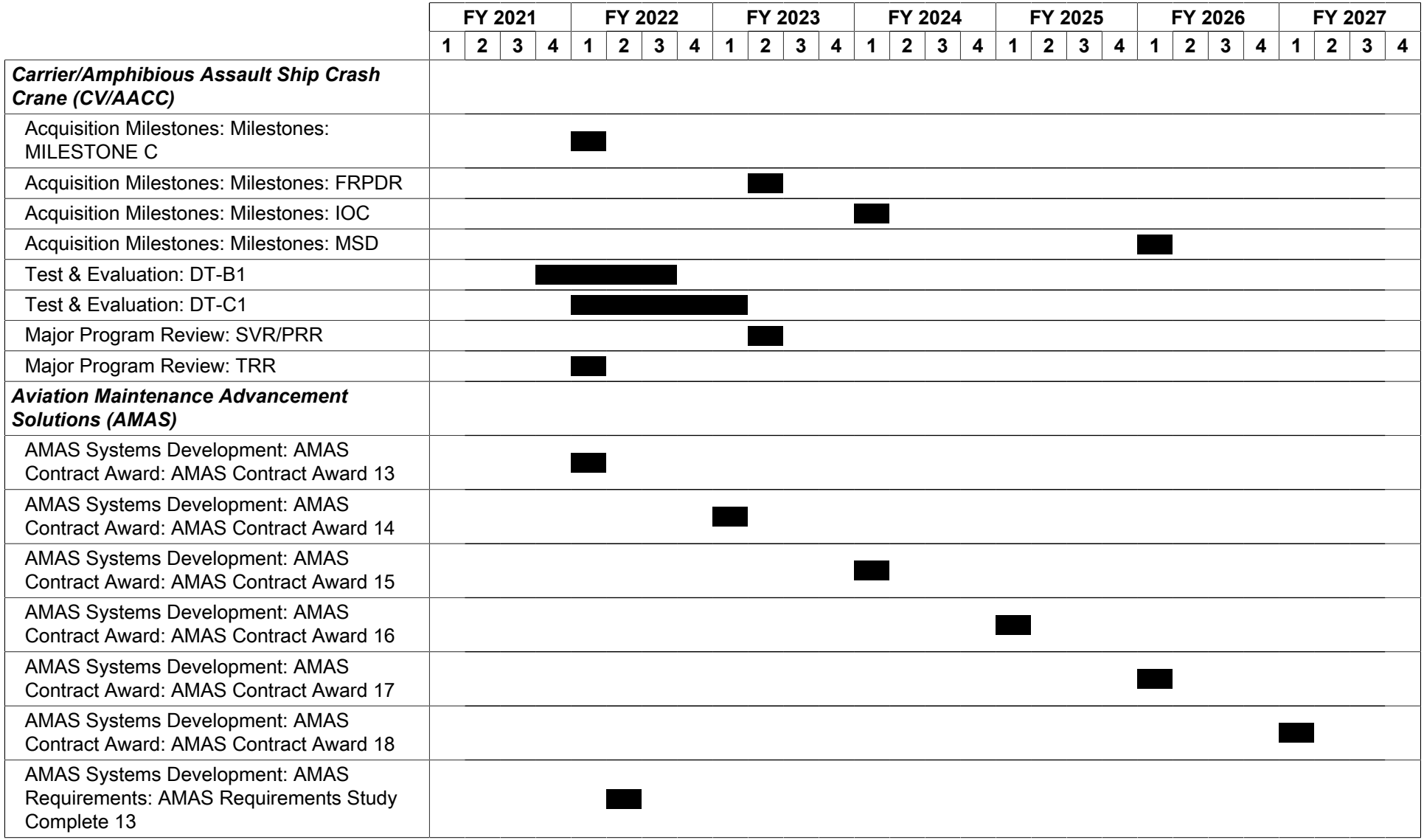


Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

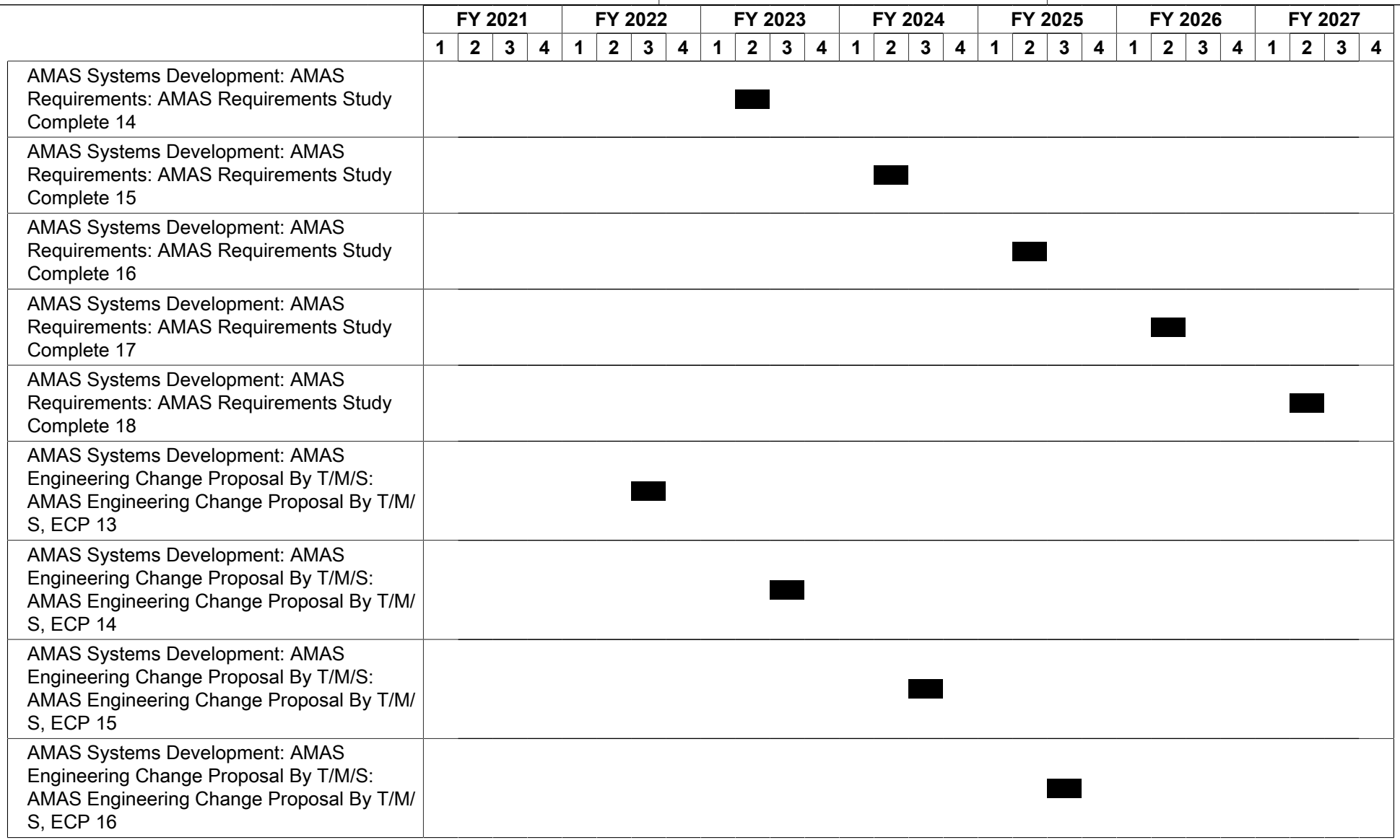


Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

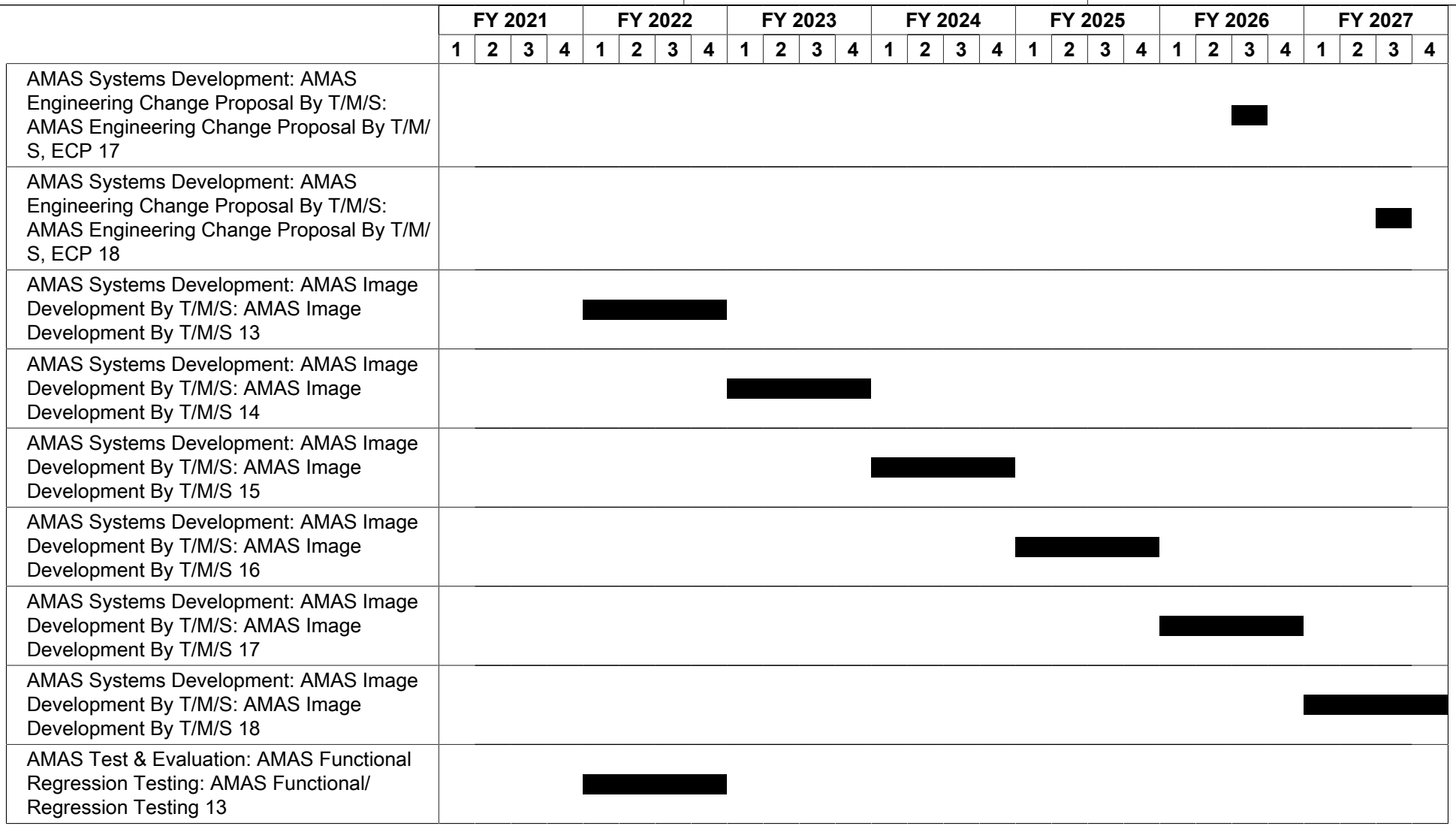


Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

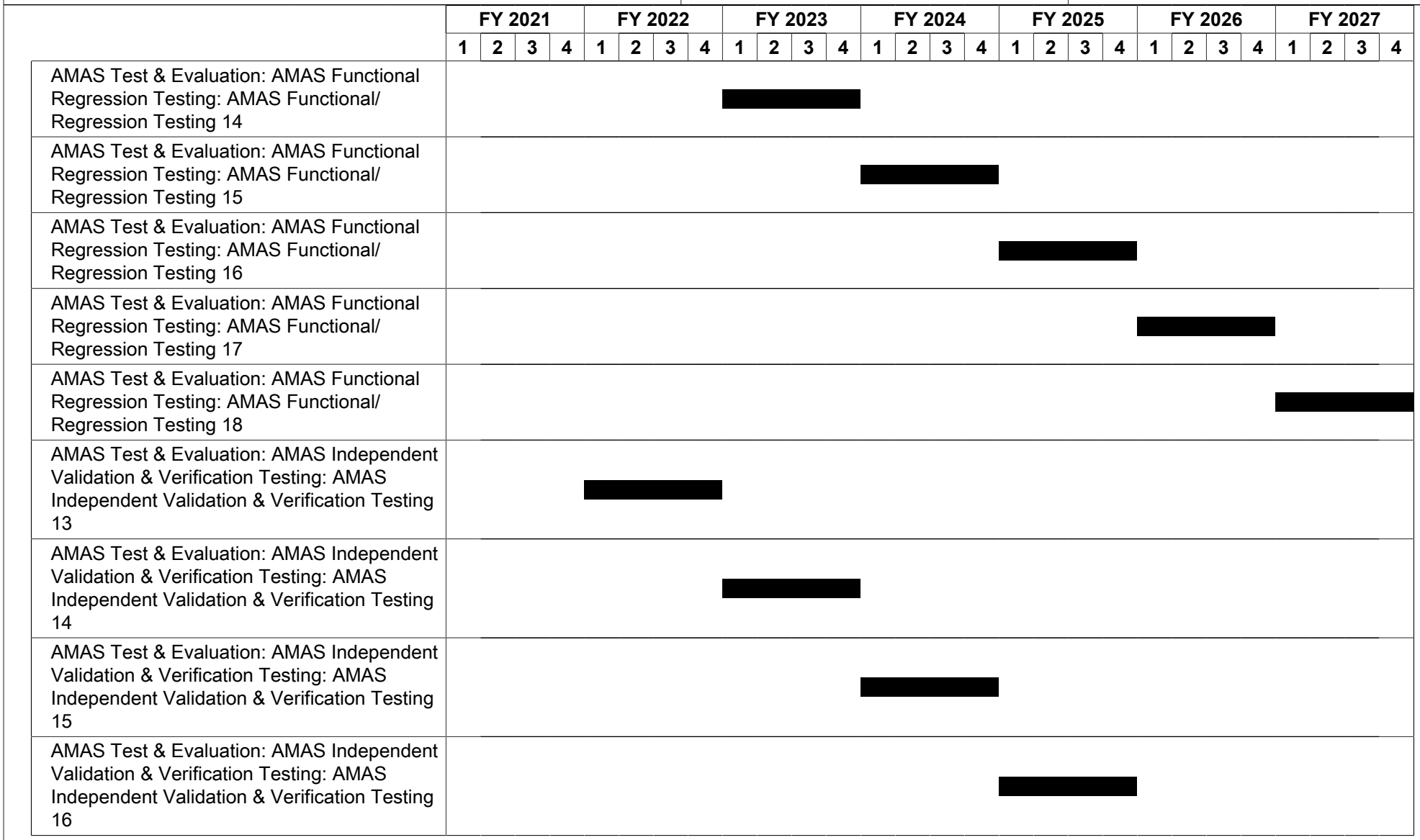


Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

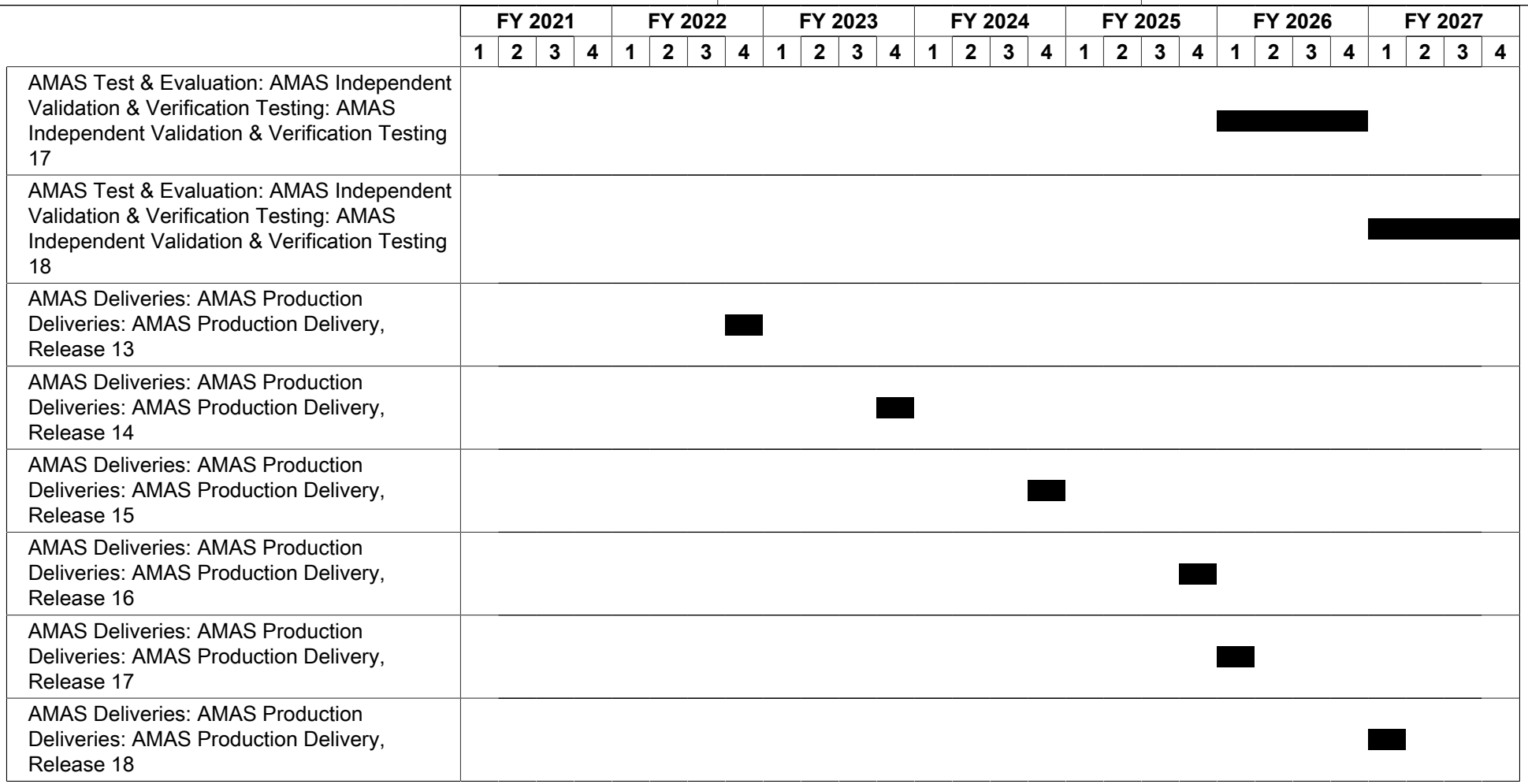


Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Carrier/Amphibious Assault Ship Crash Crane (CV/AACC)				
Acquisition Milestones: Milestones: MILESTONE C	1	2022	1	2022
Acquisition Milestones: Milestones: FRPDR	2	2023	2	2023
Acquisition Milestones: Milestones: IOC	1	2024	1	2024
Acquisition Milestones: Milestones: MSD	1	2026	1	2026
Test & Evaluation: DT-B1	4	2021	3	2022
Test & Evaluation: DT-C1	1	2022	1	2023
Major Program Review: SVR/PRR	2	2023	2	2023
Major Program Review: TRR	1	2022	1	2022
Aviation Maintenance Advancement Solutions (AMAS)				
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 13	1	2022	1	2022
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 14	1	2023	1	2023
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 15	1	2024	1	2024
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 16	1	2025	1	2025
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 17	1	2026	1	2026
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 18	1	2027	1	2027
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 13	2	2022	2	2022
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 14	2	2023	2	2023
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 15	2	2024	2	2024
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 16	2	2025	2	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 17	2	2026	2	2026
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 18	2	2027	2	2027
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 13	3	2022	3	2022
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 14	3	2023	3	2023
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 15	3	2024	3	2024
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 16	3	2025	3	2025
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 17	3	2026	3	2026
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 18	3	2027	3	2027
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 13	1	2022	4	2022
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 14	1	2023	4	2023
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 15	1	2024	4	2024
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 16	1	2025	4	2025
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 17	1	2026	4	2026
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 18	1	2027	4	2027
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 13	1	2022	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 14	1	2023	4	2023
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 15	1	2024	4	2024
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 16	1	2025	4	2025
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 17	1	2026	4	2026
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 18	1	2027	4	2027
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 13	1	2022	4	2022
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 14	1	2023	4	2023
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 15	1	2024	4	2024
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 16	1	2025	4	2025
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 17	1	2026	4	2026
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 18	1	2027	4	2027
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 13	4	2022	4	2022
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 14	4	2023	4	2023
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 15	4	2024	4	2024
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 16	4	2025	4	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 17	1	2026	1	2026
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 18	1	2027	1	2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*				Project (Number/Name) 0852 / *Consolidated Auto Support System*			
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
0852: *Consolidated Auto Support System*	184.829	11.713	20.327	9.062	-	9.062	9.823	9.170	8.911	9.003	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The electronic Consolidated Automated Support System (eCASS) project is the system design and development of the latest generation of the US Navy's CASS family of automatic test systems. The legacy CASS system was designed and developed in the 1980's and commenced fielding in 1992. As such, it is reaching the end of its useful life due to obsolescence issues. eCASS is the replacement system for legacy CASS systems, which provides Naval aircraft avionics component maintenance and repair support at Intermediate and Depot maintenance facilities both shore-based and afloat. As a CASS replacement program, the eCASS program objectives remain the same as that of CASS. Specifically: (1) increase material readiness; (2) reduce life cycle costs; (3) improve tester sustainability at depot and intermediate maintenance levels; (4) reduce proliferation of unique test equipment, and (5) provide test capability for existing and emerging avionics/electronics aircraft weapon systems.

The Test Technology development project includes analysis, application, maturation, integration and testing of emerging electronic, mechanical, and optical test technologies for potential military utility for emerging requirements or obsolescence resolution in support of Naval avionics testing and repair. Specifically included are next-generation, electro-optics, synthetic instruments, high-speed bus technologies, inertial device technologies, and various other elements of modernization for legacy Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) test systems, as well as the Consolidated Automated Support System (CASS) family of testers, including associated Test Program Sets (TPSs), ancillary equipment.

Automatic Test Systems (ATS) Modernization project includes efforts to address modernization and required obsolescence analysis and updates for legacy Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) test systems, as well as the Consolidated Automated Support System (CASS) family of testers as ATS. The ATS encompasses both software and hardware updates. Modernization required to support emerging T/M/S technologies such as next-generation electro-optics, synthetic instruments, high-speed bus technologies, inertial device technologies needed for ATS support. Efforts cover the Airborne Electronic Warfare Tester (ALERT), eCASS, their ancillary and any required Test Program Sets (TPSs) and ancillary equipment.

The Third Generation Electro-Optical (EO3) Technology Development project consists of the design and development of technology solutions, including a near-infrared camera solution to replace the existing obsolete EO3 console camera, for use in 65 fielded Navy test systems at both shore-based and afloat sites. The EO3 console subsystem is hosted by the US Navy Consolidated Automated Support System (CASS/eCASS) family of automatic test systems and is used to test, diagnose and repair the H-60 Multi-spectral Targeting System (MTS) and F/A-18 Advanced Targeting Forward Looking Infrared (ATFLIR) weapon systems. The objective of the EO3 Technology Development project is to extend the useful life of fielded EO3 systems in order to sustain H-60 MTS and F/A-18 ATFLIR weapon system readiness until the EO4 replacement system can be designed, developed, produced, and fielded.

The Fourth Generation Electro-Optical (EO4) development project consists of the design and development of the latest generation electro-optic test console for use with the electronic CASS (eCASS) automatic test system. The EO4 system will replace the legacy Third Generation Electro-Optical (EO3) system, which is facing imminent

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0852 / *Consolidated Auto Support System*

obsolescence, in providing test, repair, and maintenance capability for Naval and Marine Corps electro-optic weapon systems at both shore-based and afloat sites. As an EO3 replacement program, the EO4 program objectives remain the same as EO3. Specifically: (1) provide test capability for existing and emerging electro-optic weapon systems and components; (2) increase ready basic aircraft (RBA) metrics (operational availability); (3) reduce life-cycle costs; (4) improve sustainability at intermediate and depot levels of maintenance; and (5) reduce proliferation of unique test equipment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Test Technology Development	1.965	2.152	3.982	0.000	3.982
Articles:	-	-	-	-	-
Description: Develops, integrates, and evolves enhanced test capabilities and technologies for insertion into legacy Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) test systems, as well as the Consolidated Automated Support System (CASS) family of test systems. As weapon system electronics evolve, new test capabilities are required to support advanced systems. Existing test capabilities must be extended in range, accuracy, time and frequency domains in order to sustain the required test accuracy ratios for weapon systems support (the automatic test system must be four times as accurate as the asset being tested). ***FY 2022 Plans:*** Continue evaluation of advanced technologies to support additional test requirements. ***FY 2023 Base Plans:*** Continue evaluation of advanced technologies to support additional test requirements. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Test Technology Development funding decrease from FY22 to FY23 is due to the FY22 WBR Future Readiness Team (FRT) Initiative 3 HTS offload to CASS completed in FY22.					
Title: ATS Modernization/Product Improvement	0.000	6.067	3.911	0.000	3.911
Articles:	-	-	-	-	-
Description: ATS Modernization project includes efforts to address modernization and required obsolescence analysis and updates for legacy Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) test systems, as well as the Consolidated Automated Support System (CASS) family of testers as Automatic Test Systems (ATS). The ATS encompasses both software and hardware updates. Modernization required to support emerging T/M/S technologies such as next-generation electro-optics, synthetic instruments, high-speed bus technologies, inertial device technologies needed for ATS support. Efforts cover the Airborne					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0852 / *Consolidated Auto Support System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Electronic Warfare Tester (ALERT), eCASS, their ancillary and any required Test Program Sets (TPSs) and ancillary equipment. ***FY 2022 Plans:*** eCASS modernization efforts to address emerging avionics requirements for various T/M/S to include F-35, E-2D, F/A-18 E/F. This includes addressing legacy Test Program Sets and Ancillary requirements. ***FY 2023 Base Plans:*** Airborne Electronic Warfare Tester (ALERT) and eCASS modernization efforts to address emerging avionics requirements for various T/M/S to include F-35, E-2D, F/A-18 E/F/G. This includes addressing their legacy Test Program Sets and Ancillary requirements. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** ATS Modernization/Product Improvement funding decrease from FY22 to FY23 is due to the FY22 WBR Future Readiness Team (FRT) Initiative 3 HTS offload to CASS completed in FY22.					
Title: EO4 Development	9.748	12.108	1.169	0.000	1.169
Articles:	-	5	-	-	-
Description: Design, develop, integrate, and test a Fourth Generation Electro-Optics (EO4) test system to replace the legacy EO3 test system. EO4 systems will provide the capability to test and diagnose an array of electro-optic weapons systems on F/A-18, H-60, JSF, and other aircraft platforms to support visual imaging, target identification and tracking, range finding, night-vision, and other electro-optic weapon system capabilities. ***FY 2022 Plans:*** The selected contractor will deliver five (5) EO4 engineering development models to include the EO4 carts and or fixtures, along with all required technical data and logistics documentation. Conduct the critical design review (CDR) to establish the initial product baseline. ***FY 2023 Base Plans:*** The selected contractor will deliver five (5) EO4 engineering development models to include the EO4 carts and or fixtures, along with all required technical data and logistics documentation. Conduct DT-B1 performance, environmental, and suitability & Supportability testing (phases 1-3) in support of EO4 program development.v ***FY 2023 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0852 / *Consolidated Auto Support System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY22 activities require resource intensive material procurement and manufacturing efforts. These efforts decrease early in FY23, at which time focus shifts to Test and Evaluation efforts of the EO4 subsystem.					
Accomplishments/Planned Programs Subtotals	11.713	20.327	9.062	0.000	9.062

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APN/0705: *Common Ground Equipment-CASS/ATE*	118.057	124.075	120.307	-	120.307	121.759	123.364	125.756	128.336	Continuing	Continuing

Remarks

D. Acquisition Strategy

Formal test technology reviews with industry are conducted annually (cooperative Joint Services initiative) to define maturity of needed technologies. Further studies are conducted as needed. Procurement strategy is determined by market survey and cooperative opportunities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 0852 / *Consolidated Auto Support System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Dev - Test Technology	C/CPFF	Various : Various	7.867	0.000	Dec 2020	0.706	Dec 2021	2.304	Dec 2022	-		2.304	Continuing	Continuing	Continuing
Primary Hdw Dev - EO3	SS/CPFF	Northrop Grumman : Rolling Meadows, IL	3.844	0.000		0.000		0.000		-		0.000	0.000	3.844	3.844
Primary Hdw Dev - EO4	C/CPIF	Lockheed Martin : Lockheed Martin	3.500	8.127	Feb 2021	9.219	Feb 2022	0.807	Feb 2023	-		0.807	13.884	35.537	35.537
Prior Year Prod Dev no longer funded in the FYDP	Various	Various : Various	132.305	0.000		0.000		0.000		-		0.000	0.000	132.305	-
		Subtotal	147.516	8.127		9.925		3.111		-		3.111	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Technology Support	WR	Various : Various	3.525	1.965	Dec 2020	1.398	Dec 2021	1.598	Dec 2022	-		1.598	Continuing	Continuing	Continuing
EO3 Support	WR	NAWC AD : Lakehurst, NJ	0.777	0.000		0.000		0.000		-		0.000	0.000	0.777	-
ATS Modernization	WR	Various : Various	0.000	0.000		6.067	Dec 2021	3.911	Dec 2022	-		3.911	0.000	9.978	-
EO4 Support	WR	NAWC AD : Lakehurst, NJ	2.023	1.613	Dec 2020	2.781	Dec 2021	0.362	Dec 2022	-		0.362	4.616	11.395	-
Prior Year Support no longer funded in the FYDP	Various	Various : Various	27.703	0.000		0.000		0.000		-		0.000	0.000	27.703	-
		Subtotal	34.028	3.578		10.246		5.871		-		5.871	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Tech Travel	WR	Various : Various	0.448	0.000	Nov 2020	0.048	Nov 2021	0.080	Nov 2022	-		0.080	Continuing	Continuing	Continuing
EO3 Travel	WR	Various : Various	0.102	0.000		0.000		0.000		-		0.000	0.000	0.102	-
EO4 Travel	WR	Various : Various	0.076	0.008	Nov 2020	0.108	Nov 2021	0.000		-		0.000	0.000	0.192	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 0852 / *Consolidated Auto Support System*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Mgmt no longer funded in the FYDP	Various	Various : Various	2.659	0.000		0.000		0.000		-		0.000	0.000	2.659	-
		Subtotal	3.285	0.008		0.156		0.080		-		0.080	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	184.829	11.713		20.327		9.062		-		9.062	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0852 / *Consolidated Auto Support System*

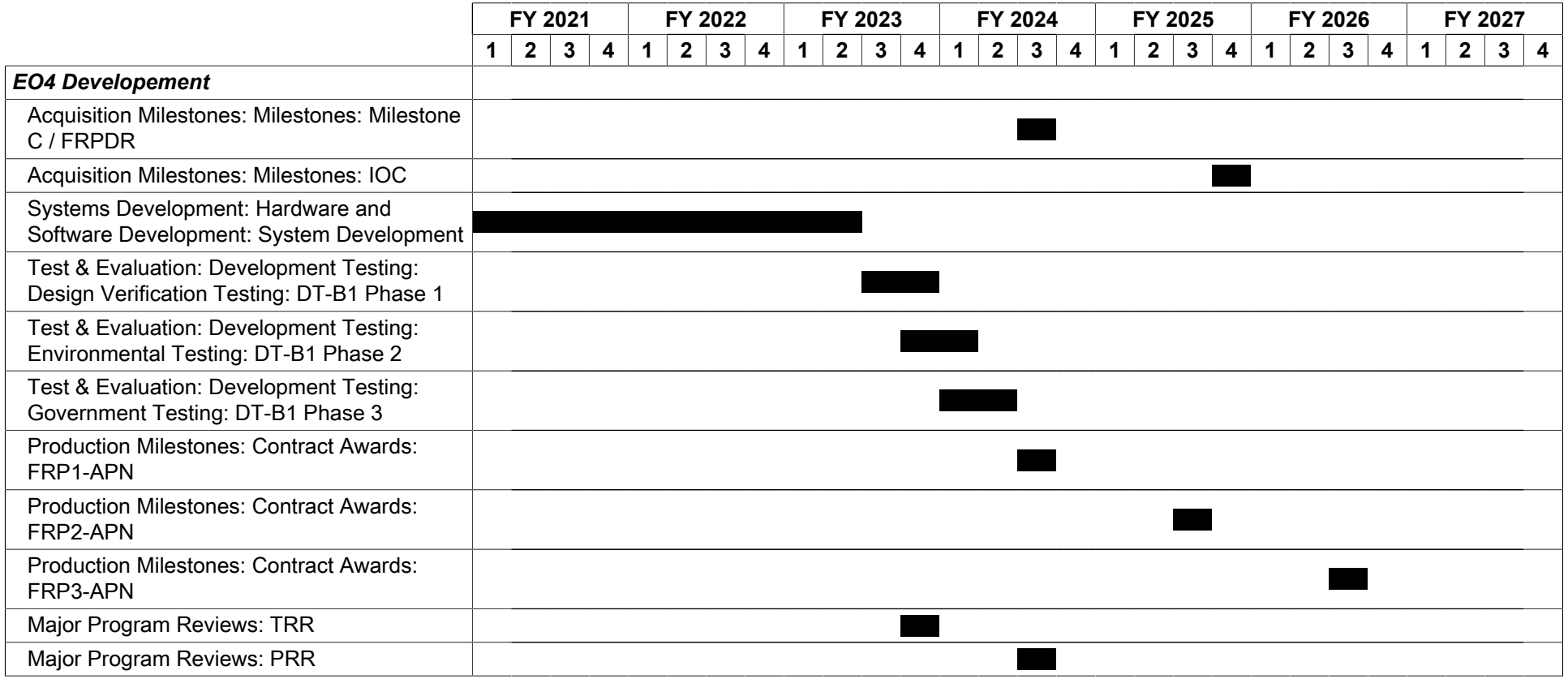


Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0852 / *Consolidated Auto Support System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
EO4 Developement				
Acquisition Milestones: Milestones: Milestone C / FRPDR	3	2024	3	2024
Acquisition Milestones: Milestones: IOC	4	2025	4	2025
Systems Development: Hardware and Software Development: System Development	1	2021	2	2023
Test & Evaluation: Development Testing: Design Verification Testing: DT-B1 Phase 1	3	2023	4	2023
Test & Evaluation: Development Testing: Environmental Testing: DT-B1 Phase 2	4	2023	1	2024
Test & Evaluation: Development Testing: Government Testing: DT-B1 Phase 3	1	2024	2	2024
Production Milestones: Contract Awards: FRP1-APN	3	2024	3	2024
Production Milestones: Contract Awards: FRP2-APN	3	2025	3	2025
Production Milestones: Contract Awards: FRP3-APN	3	2026	3	2026
Major Program Reviews: TRR	4	2023	4	2023
Major Program Reviews: PRR	3	2024	3	2024

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
1041: *Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)*	68.081	3.211	3.164	6.959	-	6.959	6.784	5.142	4.545	4.014	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP) is the only Navy program which provides Research, Development, Test & Evaluation engineering support specifically for in-service, out-of-production aircraft equipment. AERMIP increases readiness through reliability, maintainability, and safety improvements to existing systems and equipment installed in Naval aircraft. It also provides a transition vehicle to deploy Total Ownership Cost reduction initiatives through flight-test support and Fleet Test & Evaluation. It meets affordable readiness objectives by providing a cost-effective solution to obsolescence problems encountered when service lives are extended. AERMIP promotes commonality and standardization across aircraft platform lines and among the services through extension of application and use of non-developmental items. AERMIP also decreases life cycle costs through reduced operational and support costs. AERMIP facilitates the Operational, Safety and Improvement Program by applying proven low-risk solutions to current fleet problems. AERMIP also funds high-priority flight testing which is not associated with any acquisition or development program under the Flight Test General task.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Avionics and Wiring	0.381	0.381	0.446	0.000	0.446
Articles:	-	-	-	-	-
FY 2022 Plans: Test and evaluate equipment for effectiveness of wiring diagnostics and prognostics. Address avionics related reliability/maintainability issues impacting multiple aircraft platforms while continuing to investigate high value return on investment initiatives. Qualify additional material or pieces of equipment and the procedures or processes required for implementation.					
FY 2023 Base Plans: Test and evaluate equipment for effectiveness of wiring diagnostics and prognostics. Address avionics related reliability/maintainability issues impacting multiple aircraft platforms while continuing to investigate high value					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
return on investment initiatives. Qualify additional material or pieces of equipment and the procedures or processes required for implementation. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $0.065M from FY2022 to FY2023 will be used for organic labor.					
Title: Air Vehicle	2.000	2.025	5.768	0.000	5.768
Articles:	-	-	-	-	-
FY 2022 Plans: Based on advancement in technology, test and qualify new materials or equipment and the procedures/process required for their implementation to improve operational reliability, while containing cost growth. Continue to test and qualify improved corrosion preventative compounds. Address subsystem related reliability/maintainability issues impacting multiple aircraft platforms while continuing to investigate high value return on investment initiatives. Maintain efforts to qualify improved methods of structural component repair. ***FY 2023 Base Plans:*** Based on advancement in technology, test and qualify new materials or equipment and the procedures/process required for their implementation to improve operational reliability, while containing cost growth. Continue to test and qualify improved corrosion preventative compounds. Address subsystem related reliability/maintainability issues impacting multiple aircraft platforms while continuing to investigate high value return on investment initiatives. Maintain efforts to qualify improved methods of structural component repair. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $3.743M from FY2022 to FY2023 due to funding Future Readiness Team Initiatives, Cold Spray Metallization Systems and Corrosion Mitigation across the Naval Aviation Enterprise.					
Title: Systems Engineering Revitalization	0.830	0.758	0.745	0.000	0.745
Articles:	-	-	-	-	-
FY 2022 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continue research in relevant technical areas for refining use of system models for linkages to physics based models for PLM systems, data visualization of model data to inform high level assessments and stakeholder decisions and automated translation of document data straight into models. Continue the transition to model based systems engineering methodology. Refine processes and procedures for developing and extending systems models. Continue development of standard model libraries and stereotypes for reuse across system models. Continue research on linking models to risk management systems. ***FY 2023 Base Plans:*** Continue research in relevant technical areas and evaluate ways of refining the use of system models for linkages to physics based models and PLM systems, data visualization of model data to inform high level assessments and stakeholder decisions and automated translation of document data straight into models. Continue the transition to model based systems engineering methodology. Refine processes and procedures for developing and extending systems models. Continue development of standard model libraries and stereotypes for reuse across system models. Develop linkages of the system level models to risk management systems. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease of $0.013M from FY2022 to FY2023 due to accelerating project completion date to FY2023.					
Accomplishments/Planned Programs Subtotals	3.211	3.164	6.959	0.000	6.959

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This is a non-ACAT program. Procurement strategy is determined by market survey and cooperative opportunities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng - Avionics/Wiring	WR	NAWCAD : Patuxent River, MD	9.819	0.236	Oct 2020	0.282	Oct 2021	0.286	Oct 2022	-		0.286	Continuing	Continuing	Continuing
Sys Eng - Avionics/Wiring	C/FFP	Various : Various	2.940	0.060	Jan 2021	0.059	Jan 2022	0.050	Jan 2023	-		0.050	0.000	3.109	3.109
Sys Eng - Avionics/Wiring	WR	FRC-E : Cherry Point, NC	0.150	0.010	Nov 2020	0.010	Nov 2021	0.020	Nov 2022	-		0.020	Continuing	Continuing	Continuing
Sys Eng - Avionics/Wiring	WR	FRC-SE : Jacksonville, FL	0.040	0.010	Nov 2020	0.010	Nov 2021	0.020	Nov 2022	-		0.020	Continuing	Continuing	Continuing
Sys Eng - Avionics/Wiring	WR	FRC-SW : San Diego, CA	0.040	0.015	Nov 2020	0.015	Nov 2021	0.020	Nov 2022	-		0.020	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	NAWCAD : Patuxent River, MD	14.173	0.867	Oct 2020	0.877	Oct 2021	2.337	Oct 2022	-		2.337	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	FRC-SW : San Diego, CA	2.881	0.400	Nov 2020	0.425	Nov 2021	0.532	Nov 2022	-		0.532	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	FRC-E : Cherry Point, NC	2.336	0.208	Nov 2020	0.150	Nov 2021	0.373	Nov 2022	-		0.373	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	FRC-SE : Jacksonville, FL	1.356	0.225	Nov 2020	0.247	Nov 2021	0.373	Nov 2022	-		0.373	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	C/FFP	Various : Various	3.402	0.150	Jan 2021	0.150	Dec 2021	1.863	Dec 2022	-		1.863	0.000	5.565	5.565
Sys Eng - SE Revitalization	WR	NAWCAD : Patuxent River, MD	1.040	0.006	Oct 2020	0.007	Oct 2021	0.010	Nov 2022	-		0.010	Continuing	Continuing	Continuing
Sys Eng - SE Revitalization	C/FFP	Engility Corp. : Chantilly, VA	5.818	0.270	Feb 2021	0.227	Feb 2022	0.230	Feb 2023	-		0.230	0.000	6.545	6.545
Sys Eng - SE Revitalization	C/CPFF	Stevens Inst of Technology : Hoboken, NJ	3.934	0.554	Feb 2021	0.505	Feb 2022	0.505	Feb 2023	-		0.505	0.000	5.498	5.498
Prior Year Sys Eng NAE/ Prod Dev no longer funded in the FYDP	Various	Various : Various	2.813	0.000		0.000		0.000		-		0.000	0.000	2.813	-
		Subtotal	50.742	3.011		2.964		6.619		-		6.619	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

All prior year lines have been consolidated

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Support cost no longer funded in the FYDP	Various	Various : Various	12.480	0.000		0.000		0.000		-		0.000	0.000	12.480	-
		Subtotal	12.480	0.000		0.000		0.000		-		0.000	0.000	12.480	N/A

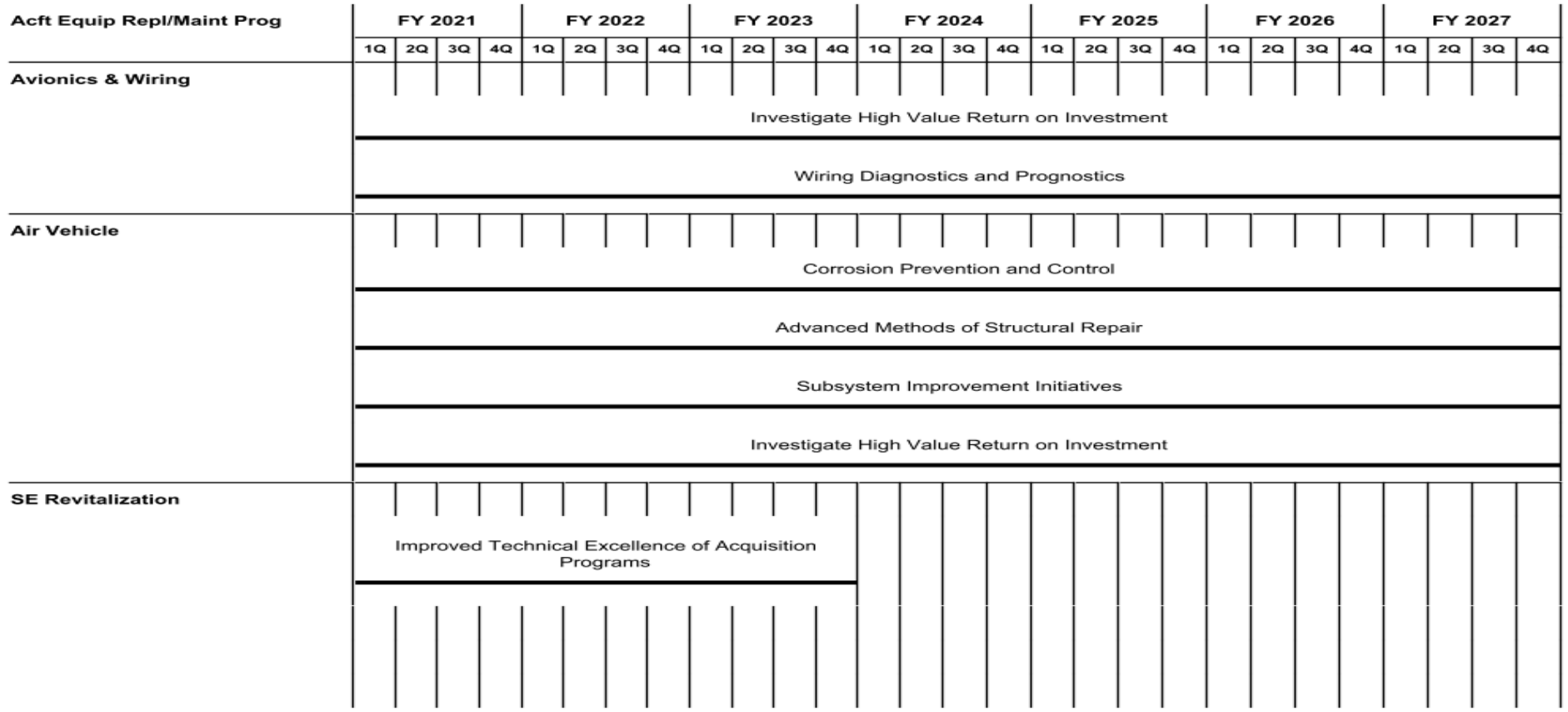
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Patuxent River, MD	2.888	0.200	Oct 2020	0.200	Oct 2021	0.340	Oct 2022	-		0.340	Continuing	Continuing	Continuing
Prior Year Mgmt cost no longer funded in the FYDP	Various	Various : Various	1.971	0.000		0.000		0.000		-		0.000	0.000	1.971	-
		Subtotal	4.859	0.200		0.200		0.340		-		0.340	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	68.081	3.211		3.164		6.959		-		6.959	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*



2023DON - 0205633N - 1041

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acft Equip Repl/Maint Prog				
Avionics & Wiring: Investigate High Value Return on Avionics & Wiring Investment	1	2021	4	2027
Avionics & Wiring: Wiring Diagnostics and Prognostics	1	2021	4	2027
Air Vehicle: Corrosion Prevention and Control	1	2021	4	2027
Air Vehicle: Advanced Methods of Structural Repair	1	2021	4	2027
Air Vehicle: Subsystem Improvement Initiatives	1	2021	4	2027
Air Vehicle: Investigate High Value Return on Air Vehicle Investment	1	2021	4	2027
SE Revitalization: Improved Technical Excellence of Acquisition Programs	1	2021	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 1355 / *Propulsion and Power Component Improvement Program*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
1355: *Propulsion and Power Component Improvement Program*	1,433.602	106.239	101.313	111.812	-	111.812	118.966	111.851	112.883	114.852	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Propulsion and Power (P&P) Component Improvement Program (CIP) provides the only source of critical design and development engineering support to resolve safety, reliability and maintainability deficiencies of in-service Navy and Marine Corps aircraft propulsion systems. The highest priority issues P&P CIP addresses concern safety-of-flight deficiencies, which account for approximately 80% of P&P CIP efforts. The program also corrects service-revealed deficiencies, improves Operational Readiness and Reliability and Maintainability, and reduces platform Life Cycle Cost. Budgets are allocated across platform-specific teams and multi-platform product support teams based upon long term strategies to achieve safety and affordable readiness goals; the R-3 exhibit details annual portions of those long-term strategies. P&P CIP tasks have reduced the rate of in-flight aborts, safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance work hours, and overall cost of ownership. This is accomplished through the maintenance and validation of specification performance, testing to qualify engineering changes, verifying life limits, and improving the inherent reliability of the propulsion and power systems as an integral part of Reliability Centered Maintenance initiatives. Historically, the missions, tactics, and environmental exposure of military aircraft systems change to meet new threats or operational demands, and often result in unforeseen problems, which if not corrected, can cause critical safety/readiness degradation, such as those experienced during OPERATIONS DESERT SHIELD/DESERT STORM, ENDURING FREEDOM, and IRAQI FREEDOM due to sand erosion. In addition, new problems arise through actual fleet deployment and usage of the aircraft. System development programs, while geared to resolve as many problems as possible before deployment, cannot duplicate actual operations or account for the vast array of environmental and usage variables, particularly when aircraft missions vary from those that the aircraft was designed to perform. Therefore, it has been found that P&P CIP can provide an immediate engineering response to these flight-critical problems and accelerated engine testing can avoid potential problems. P&P CIP starts after development and Navy acceptance of the first production article and addresses usage and life problems not covered by warranties. P&P CIP addresses engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, aircraft wiring, and fuel and lubricant systems. These efforts continue over the system's life, gradually decreasing to a minimum level sufficient to maintain the reliability, and decrease the operating costs, of older inventory. P&P CIP is a highly leveraged and cooperative tri-service program with Foreign Military Sales participation.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: P3, E2, C2, C130 (T56)	6.250	6.250	6.250	0.000	6.250
Articles:	-	-	-	-	-
FY 2022 Plans: Continue joint projects with the USAF on the T56 Series III engine on the analysis, design and qualification of improvements to address Service Revealed Deficiencies and preform repair engineering development to					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
system components including bearings, seals and drives, the compressor, combustor, turbine, control system, static structures, and gearboxes. For the T56 Series IV engine perform analysis, design and qualification work related to address Service Revealed Deficiencies and safety, readiness and cost drivers on system components and execute projects on engine performance standardization, rub tolerant turbine blades, fuel nozzle anti-coke coating, step up gearbox oil leakage and updated software for the propulsion control and monitoring unit. Develop, design and test improvements to system components including the compressor, combustor, turbine, controls and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems and auxiliary power, and electrical power systems. ***FY 2023 Base Plans:*** Continue joint projects with the USAF on the T56 Series III engine on the analysis, design and qualification of improvements to address Service Revealed Deficiencies and preform repair engineering development to system components. For the T56 Series IV engine perform analysis, design and qualification work related to address Service Revealed Deficiencies and safety, readiness and cost drivers on system components and execute projects on engine performance standardization, hot section reliability, compressor blade durability and analytical condition inspections of Fleet hardware. Develop, design and test improvements to system components including the compressor, combustor, turbine, controls and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems and auxiliary power, and electrical power systems. ***FY 2023 OCO Plans:*** N/A					
Title: E2/C2/C130/P3 (Props)	3.700	3.700	3.800	0.000	3.800
Articles:	-	-	-	-	-
FY 2022 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on system components for the 54H60, R391 and NP2000 propeller systems. Develop, design and test 54H60, R391 and NP2000 Propeller system improvements to the control, pitch actuation and hydraulic systems, blades, pumps, housings, seals and static structure to improve safety, reliability, maintainability, affordability, durability and Readiness. Execute engineering efforts on repair and reliability engineering, universal closed loop bench test system, fleet metric database development and					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
management and perform analysis, design and testing on the NP2000 modern pump housing and onboard propeller balance monitoring systems. ***FY 2023 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on system components for the 54H60, R391 and NP2000 propeller systems. Develop, design and test 54H60, R391 and NP2000 Propeller system improvements to the control, pitch actuation and hydraulic systems, blades, pumps, housings, seals and static structure to improve safety, reliability, maintainability, affordability, durability and Readiness. Execute efforts on repair and reliability engineering, universal closed loop bench testing, bond joint delamination and perform analysis, design and testing on components including the NP2000 modern pump housing and onboard propeller balance monitoring systems. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $0.100 million from FY2022 to FY2023 for NP2000 propeller blade durability improvement and demonstration.					
Title: SH-60B/F, HH-60H, MH-60R/S (T700)	6.495	6.495	7.400	0.000	7.400
Articles:	-	-	-	-	-
FY 2022 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T700 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems, auxiliary power and electrical power systems, and main and tail rotor drives systems. Perform analysis, design and testing on projects to improve the compression system and static structures tolerance to sand ingestion, update engine performance modeling and engine build optimization. Perform analysis, modeling design and testing on projects related to air vehicle drive system damage tolerance and reparability. Conduct lithium battery qualification testing. Perform engine and component testing to develop and qualify design improvements. ***FY 2023 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T700 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems, auxiliary power and electrical power systems, and main and tail rotor drives systems. Perform analysis, design and testing on projects to improve the compression system and static structures tolerance to sand ingestion, update engine performance models and engine build optimization. Perform analysis, modeling design and testing on propulsion system damage tolerance and reparability. Conduct battery qualification testing. Perform engine and component testing to develop and qualify design improvements. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $0.905M from FY2022 to FY2023 for uninstalled engine testing to demonstrate durability improvements..					
Title: H-1 (T400/T700)	0.600	0.600	0.600	0.000	0.600
Articles:	-	-	-	-	-
FY 2022 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T700 propulsion and power system components including the compressor, combustor, turbines, controls, diagnostics, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power, electrical power systems and main and tail rotor drives systems. ***FY 2023 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T700 propulsion and power system components including the compressor, combustor, turbines, controls, diagnostics, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power, electrical power systems and main and tail rotor drives systems. ***FY 2023 OCO Plans:*** N/A					
Title: AV-8B (F402)	3.651	3.651	3.651	0.000	3.651
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY 2022 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the F402 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems, auxiliary power, electrical power and FOD detection systems. Continue working on risk management plan of supplying critical parts and refinement of life limit determinations and identification of critical parts constraints to improve safety, reliability, maintainability, affordability, durability and Readiness. ***FY 2023 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the F402 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems, auxiliary power, electrical power and FOD detection systems. Continue working on risk management plan of supplying critical parts and refinement of life limit determinations and identification of critical parts constraints to improve safety, reliability, maintainability, affordability, durability and Readiness. ***FY 2023 OCO Plans:*** N/A					
Title: H-53/H-46/H-3 (T58/T64)	4.050	4.050	4.050	0.000	4.050
Articles:	-	-	-	-	-
FY 2022 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T64 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and air vehicle drive system components to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing to develop inspection and repair criteria, optimized depot-level engine build specification procedures, and data reduction program implementation. Update engine mission usage and hardware life management plans. ***FY 2023 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T64 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and air vehicle drive system components to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing to develop inspection and repair criteria, optimized depot-level engine build specification procedures, and data reduction program implementation. Update engine mission usage and hardware life management plans. ***FY 2023 OCO Plans:*** N/A					
Title: F-18 C/D/E/F (F414/F404)	17.936	15.743	19.798	0.000	19.798
Articles:	-	-	-	-	-
FY 2022 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on propulsion and power system components for the F414 and F404 turbofan engines including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter and exhaust systems to improve reliability, maintainability, affordability, durability. Perform engine and component test programs including rotor spin tests and accelerated simulated mission endurance testing.					
FY 2023 Base Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on propulsion and power system components for the F414 and F404 turbofan engines including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter and exhaust systems to improve reliability, maintainability, affordability, durability. Execute design efforts to improve engine hot section durability. Execute engine and component test programs to demonstrate design improvements.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Increase of $4.055M from FY2022 to FY2023 for F414 accelerated simulated mission endurance testing.					
Title: T-45 (F405) ***Articles:*** ***FY 2022 Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies, safety, readiness and cost drivers on the F405 propulsion and power system components including fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing on projects to update rotating engine part lives and mitigation approaches to address propulsion and power system component obsolescence issues and engine performance degradation. ***FY 2023 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies, safety, readiness and cost drivers on the F405 propulsion and power system components including fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing on projects to update rotating engine part lives and mitigation approaches to address propulsion and power system component obsolescence issues and engine performance degradation. ***FY 2023 OCO Plans:*** N/A	2.600 -	2.600 -	2.600 -	0.000 -	2.600 -
Title: V-22 Propulsion ***Articles:*** ***FY 2022 Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the AE1107C propulsion and power system components the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and prop rotor drive systems to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing on projects to mitigate rapid power loss and engine surge, and improve engine durability and operability, update	6.400 -	6.400 -	6.600 -	0.000 -	6.600 -

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
engine part lives and management plan with updated mission mix, execute prop rotor input quill clutch system redesign and improve power assurance check accuracy to improve mission planning. Perform engine analytical condition inspections, air vehicle drive system damage tolerance assessment and turbine rig and full scale engine testing. ***FY 2023 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the AE1107C propulsion and power system components the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and prop rotor drive systems to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing on projects to mitigate rapid power loss and engine surge, and improve engine durability and operability, perform testing and analysis to update the engine stability audit. Perform engine analytical condition inspections and air vehicle drive system damage tolerance assessments. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $0.200M from FY2022 to FY2023 is due to increased engine and drive system design changes for the V-22 propulsion.					
Title: Adversary (J85) (F100)	2.350	2.350	2.350	0.000	2.350
Articles:	-	-	-	-	-
FY 2022 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and Readiness and cost drivers on the J85 and F100 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter and exhaust systems to improve safety, reliability, maintainability, affordability, durability. Continue joint projects with the USAF to perform analysis, design and testing on projects to validate the life assessment of J85 critical rotating hardware, address parts obsolescence issues, evaluate hardware inspection data, and perform stress modeling to update					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
life limits, implement upgraded engine performance monitoring system, and implement improved turbine thermocouple probe and harness redesign. ***FY 2023 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and Readiness and cost drivers on the J85 and F100 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter and exhaust systems to improve safety, reliability, maintainability, affordability, durability. Continue joint projects with the USAF to perform analysis, design and testing on projects to validate the life assessment of J85 critical rotating hardware, address parts obsolescence issues, evaluate hardware inspection data, and perform stress modeling to update life limits. ***FY 2023 OCO Plans:*** N/A					
Title: Joint Strike Fighter (F135 Engine) ***Articles:*** ***FY 2022 Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on propulsion and power system components of the F135 engine and STOVL lift system in accordance with F-35 Program Instruction 1540.05 F135 CIP Management Guide for the F135 Propulsion System Component Improvement Program. Develop, design and test improvements to system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter, exhaust and STOVL Lift system to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform engine testing and STOVL propulsion system testing at government and contractor test facilities. ***FY 2023 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on propulsion and power system components of the F135 engine and STOVL lift system in accordance with F-35 Program Instruction 1540.05 F135 CIP Management Guide for the F135 Propulsion System Component Improvement Program. Develop, design and test improvements to system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static	33.638 -	33.638 -	37.460 -	0.000 -	37.460 -

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter, exhaust and STOVL Lift system to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform engine testing and STOVL propulsion system testing at government and contractor test facilities. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $3.822M from FY2022 to FY2023 for uninstalled engine Accelerated Mission Testing (AMT) at the Arnold Engineering Development Center (AEDC) including hot-section life durability tests.					
Title: P-8A (CFM56 Engine) ***Articles:*** ***FY 2022 Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on propulsion and power system components of the CFM56 system including the fan, compressor, combustors, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, and durability. ***FY 2023 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on propulsion and power system components of the CFM56 system including the fan, compressor, combustors, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, and durability. ***FY 2023 OCO Plans:*** N/A	0.650 -	0.650 -	0.650 -	0.000 -	0.650 -
Title: Multi-Platform Product Support Teams ***Articles:*** ***FY 2022 Plans:***	6.039 -	3.306 -	4.723 -	0.000 -	4.723 -

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continue projects to provide support to multiple platforms to analyze fleet component removal driver and reliability metrics to focus CIP investments to maximize return on investment, improve performance analysis, structural integrity modeling and simulation tools, and developmental test and evaluation facilities and procedures for propulsion and power system including engines, drive systems, fuels and lubricants, auxiliary power and electrical power systems. Includes funding for Government Furnished Fuel for research and development test and evaluation programs to evaluate and qualify component design improvements to improve safety, readiness, reliability, maintainability and durability. ***FY 2023 Base Plans:*** Continue projects to provide support to multiple platforms to analyze fleet component removal driver and reliability metrics to focus CIP investments to maximize Readiness and return on investment, improve performance analysis, structural integrity modeling and simulation tools, and developmental test and evaluation facilities and procedures for propulsion and power system including engines, drive systems, fuels and lubricants, auxiliary power and electrical power systems. Includes funding for Government Furnished Fuel for research and development test and evaluation programs to evaluate and qualify component design improvements to improve safety, readiness, reliability, maintainability and durability. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase of $1.417M from FY2022 to FY2023 due to additional engineering effort to implement a comprehensive Foreign Object Damage (FOD) program through a multi-faceted approach to understand and mitigate engine rejections due to FOD and reduce engine repair costs related to FOD.					
Title: H-53K Propulsion (T408)	9.000	9.000	9.000	0.000	9.000
Articles:	-	-	-	-	-
FY 2022 Plans: Perform engineering analysis, design and test efforts to address identified deficiencies and safety readiness and cost and reliability drivers on the T408 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and main and tail rotor drive systems to improve safety, reliability, maintainability, affordability, durability. Acquire an engine test vehicle to qualify design					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
changes developed under the component improvement program and perform component level and uninstalled engine testing. ***FY 2023 Base Plans:*** Perform engineering analysis, design and test efforts to address identified deficiencies and safety readiness and cost and reliability drivers on the T408 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and main and tail rotor drive systems to improve safety, reliability, maintainability, affordability, durability. Perform analysis and testing to develop improvements to compression system stability and operability and improve sand ingestion tolerance. Perform uninstalled engine environmental endurance testing. ***FY 2023 OCO Plans:*** N/A					
Title: MQ-4C (AE3007 Engine) ***Articles:*** ***FY 2022 Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on the AE3007 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, and durability. ***FY 2023 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on the AE3007 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, and durability. ***FY 2023 OCO Plans:*** N/A	1.500 -	1.500 -	1.500 -	0.000 -	1.500 -
Title: UAV Programs (Various) ***Articles:***	1.380 -	1.380 -	1.380 -	0.000 -	1.380 -

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY 2022 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on the propulsion and power systems for small and medium size Unmanned Air Vehicles (UAVs) including the RQ-21 Small Tactical Unmanned Aerial System (STUAS) and the MQ-8B and MQ-8C Fire Scout variants. Develop, design and test improvements to system components including the engine components, control and diagnostic systems, static structures, bearings, seals, drives, fuel and lubrication systems, ignition and electrical power systems, exhaust system and the propeller to improve safety, reliability, maintainability, affordability, and durability. ***FY 2023 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on the propulsion and power systems for small and medium size Unmanned Air Vehicles (UAVs) including the RQ-21 Small Tactical Unmanned Aerial System (STUAS) and the MQ-8B and MQ-8C Fire Scout variants. Develop, design and test improvements to system components including the engine components, control and diagnostic systems, static structures, bearings, seals, drives, fuel and lubrication systems, ignition and electrical power systems, exhaust system and the propeller to improve safety, reliability, maintainability, affordability, and durability. ***FY 2023 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	106.239	101.313	111.812	0.000	111.812

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This is a NON-ACAT program. Procurement strategy is determined by market survey and cooperative opportunities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng T56 Engine Program	WR	NAWCAD : Patuxent River, MD	55.320	2.750	Oct 2020	2.750	Oct 2021	2.750	Oct 2022	-		2.750	Continuing	Continuing	Continuing
Sys Eng T56 Engine Program	SS/CPFF	Rolls Royce : Indianapolis, IN	73.241	3.050	Jan 2021	3.050	Jan 2022	3.050	Jan 2023	-		3.050	0.000	82.391	82.391
Sys Eng T56 Engine Program	WR	FRC-E : Cherry Point, NC	4.435	0.270	Oct 2020	0.270	Oct 2021	0.270	Oct 2022	-		0.270	Continuing	Continuing	Continuing
Sys Eng T56 Engine Program	WR	FRC-SE : Jacksonville, FL	1.096	0.090	Oct 2020	0.090	Oct 2021	0.090	Oct 2022	-		0.090	Continuing	Continuing	Continuing
Sys Eng T56 Engine Program	WR	FRC-SW : North Island, CA	0.378	0.090	Oct 2020	0.090	Oct 2021	0.090	Oct 2022	-		0.090	Continuing	Continuing	Continuing
Sys Eng Props Program	SS/CPFF	Hamilton Sundstrand : Windsor Locks, CT	37.033	3.700	Jan 2021	2.700	Jan 2022	2.800	Jan 2023	-		2.800	0.000	46.233	46.233
Sys Eng Props Program	SS/CPFF	Dowty Propellers : Gloucester UK	0.000	0.000		1.000	Jan 2022	1.000	Jan 2023	-		1.000	0.000	2.000	2.000
Sys Eng T700 Engine Program	WR	NAWCAD : Patuxent River, MD	24.927	3.600	Oct 2020	3.600	Oct 2021	3.800	Oct 2022	-		3.800	Continuing	Continuing	Continuing
Sys Eng T700 Engine Program	SS/CPFF	General Electric : Lynn, MA	43.921	3.500	Jan 2021	3.500	Jan 2022	3.600	Jan 2023	-		3.600	0.000	54.521	54.521
Sys Eng F402 Engine Program	WR	NAWCAD : Patuxent River, MD	26.207	1.800	Oct 2020	1.800	Oct 2021	1.800	Oct 2022	-		1.800	Continuing	Continuing	Continuing
Sys Eng F402 Engine Program	WR	FRC-E : Cherry Point, NC	1.387	0.151	Oct 2020	0.152	Oct 2021	0.152	Oct 2022	-		0.152	Continuing	Continuing	Continuing
Sys Eng F402 Engine Program	SS/CPFF	Rolls Royce : Bristol, England, UK	82.560	1.700	Jan 2021	1.700	Jan 2022	1.700	Jan 2023	-		1.700	0.000	87.660	87.660
Sys Eng T58/T64 Engine Program	WR	NAWCAD : Patuxent River, MD	43.680	2.200	Oct 2020	2.200	Oct 2021	2.200	Oct 2022	-		2.200	Continuing	Continuing	Continuing
Sys Eng T58/T64 Engine Program	SS/CPFF	General Electric : Lynn, MA	93.200	1.850	Jan 2021	1.850	Jan 2022	1.850	Jan 2023	-		1.850	0.000	98.750	98.750
Sys Eng F414/F404 Engine Program	WR	NAWCAD : Patuxent River, MD	61.484	4.110	Oct 2020	4.110	Oct 2021	5.110	Oct 2022	-		5.110	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng F414/F404 Engine Program	SS/CPFF	General Electric : Lynn, MA	206.685	13.576	Jan 2021	11.475	Jan 2022	14.188	Jan 2023	-		14.188	0.000	245.924	245.924
Sys Eng F414/F404 Engine Program	WR	FRC-SE : Jacksonville, FL	1.723	0.250	Nov 2020	0.250	Nov 2021	0.500	Nov 2022	-		0.500	Continuing	Continuing	Continuing
Sys Eng F405 Engine Program	WR	NAWCAD : Patuxent River, MD	16.235	1.500	Oct 2020	1.500	Oct 2021	1.500	Oct 2022	-		1.500	Continuing	Continuing	Continuing
Sys Eng F405 Engine Program	SS/CPFF	Rolls Royce : Bristol, England, UK	41.029	1.100	Jan 2021	1.100	Jan 2022	1.100	Jan 2023	-		1.100	0.000	44.329	44.329
Sys Eng V-22 Propulsion Program	WR	NAWCAD : Patuxent River, MD	5.738	2.100	Oct 2020	2.100	Oct 2021	2.200	Oct 2022	-		2.200	Continuing	Continuing	Continuing
Sys Eng V-22 Propulsion Program	SS/FFP	Bell- Boeing : Ft. Worth, TX	13.144	2.100	Jan 2021	2.100	Jan 2022	2.200	Jan 2023	-		2.200	0.000	19.544	19.544
Sys Eng V-22 Propulsion Program	SS/CPFF	Rolls Royce : Indianapolis, IN	9.085	2.200	Jan 2021	2.200	Jan 2022	2.200	Jan 2023	-		2.200	0.000	15.685	15.685
Sys Eng Adversary J85 Engine Program	WR	FRC-SE : Jacksonville, FL	0.283	0.100	Nov 2020	0.100	Nov 2021	0.100	Nov 2022	-		0.100	Continuing	Continuing	Continuing
Sys Eng Adversary J85 Engine Program	WR	NAWCAD : Patuxent River, MD	8.060	1.600	Oct 2020	1.600	Oct 2021	1.600	Nov 2022	-		1.600	Continuing	Continuing	Continuing
Sys Eng Adversary J85 Engine Program	SS/CPFF	General Electric : Lynn, MA	4.896	0.650	Jan 2021	0.650	Jan 2022	0.650	Jan 2023	-		0.650	0.000	6.846	6.846
Sys Eng JSF Engine Program	WR	NAWCAD : Patuxent River, MD	10.560	1.400	Oct 2020	1.400	Oct 2021	1.400	Oct 2022	-		1.400	Continuing	Continuing	Continuing
Sys Eng JSF Engine Program	SS/FFP	UTC Pratt & Whitney : East Hartford, CT	128.825	32.238	Jan 2021	32.473	Jan 2022	36.060	Jan 2023	-		36.060	0.000	229.596	229.596
Sys Eng P-8A Engine Program	WR	NAWCAD : Patuxent River, MD	3.500	0.650	Oct 2020	0.650	Oct 2021	0.650	Oct 2022	-		0.650	Continuing	Continuing	Continuing
Sys Eng Lab Fld Activity-1.0 or more	WR	NAWCAD : Patuxent River, MD	230.696	3.789	Oct 2020	1.758	Oct 2021	3.827	Oct 2022	-		3.827	Continuing	Continuing	Continuing
Sys Eng Other In-House Spt	Various	Various : Various	21.297	0.550	Nov 2020	0.400	Nov 2021	0.500	Nov 2022	-		0.500	Continuing	Continuing	Continuing
GFE*	Reqn	DES/DLA : Various	16.994	1.700	Jan 2021	0.920	Jan 2022	1.000	Jan 2023	-		1.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng H-53K Propulsion	WR	NAWCAD : Patuxent River, MD	3.550	2.000	Oct 2020	2.000	Oct 2021	2.000	Oct 2022	-		2.000	Continuing	Continuing	Continuing
Sys Eng H-53K Propulsion	SS/CPFF	General Electric : Lynn, MA	12.000	7.000	Jan 2021	7.000	Jan 2022	7.000	Jan 2023	-		7.000	0.000	33.000	33.000
MQ-4C	WR	NAWCAD : Patuxent River, MD	0.400	0.500	Oct 2020	0.500	Oct 2021	0.500	Oct 2022	-		0.500	Continuing	Continuing	Continuing
MQ-4C	SS/CPFF	Rolls Royce : Indianapolis, IN	1.000	1.000	Mar 2021	1.000	Mar 2022	1.000	Mar 2023	-		1.000	0.000	4.000	4.000
Sys Eng UAV Engine Program	SS/FFP	Bell-Boeing : Bingen, WA	0.400	0.500	Mar 2021	0.500	Mar 2022	0.500	Mar 2023	-		0.500	0.000	1.900	1.900
Sys Eng UAV Engine Program	WR	NAWCAD : Patuxent River, MD	0.250	0.300	Oct 2020	0.300	Oct 2021	0.300	Oct 2022	-		0.300	Continuing	Continuing	Continuing
Prior Year Prod Dev costs no longer funded in the FYDP	Various	Various : Various	131.162	0.000		0.000		0.000		-		0.000	0.000	131.162	-
		Subtotal	1,416.381	105.664		100.838		111.237		-		111.237	Continuing	Continuing	N/A

Remarks

GFE includes expected cost of fuel necessary to support engine development and qualification testing.
Total may be off due to rounding.
All prior year lines have been consolidated.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various	Various : Various	8.500	0.100	Oct 2020	0.100	Oct 2021	0.100	Oct 2022	-		0.100	Continuing	Continuing	Continuing
Development Support	WR	NSWC : Crane, IN	0.660	0.100	Oct 2020	0.100	Oct 2021	0.100	Oct 2022	-		0.100	Continuing	Continuing	Continuing
Prior Year Development Supt cost no longer	Various	Various : Various	1.278	0.000		0.000		0.000		-		0.000	0.000	1.278	-
		Subtotal	10.438	0.200		0.200		0.200		-		0.200	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	Various	Various : Various	3.642	0.200	Oct 2020	0.100	Oct 2021	0.200	Oct 2022	-		0.200	Continuing	Continuing	Continuing
Development Test & Evaluation	WR	NSWC : Crane, IN	0.748	0.100	Oct 2020	0.100	Oct 2021	0.100	Oct 2022	-		0.100	Continuing	Continuing	Continuing
		Subtotal	4.390	0.300		0.200		0.300		-		0.300	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	NAVAIR : Patuxent River, MD	0.946	0.075	Oct 2020	0.075	Oct 2021	0.075	Oct 2022	-		0.075	Continuing	Continuing	Continuing
Prior Year Mgmt cost no longer funded in the FYDP	Various	Various : Various	1.447	0.000		0.000		0.000		-		0.000	0.000	1.447	-
		Subtotal	2.393	0.075		0.075		0.075		-		0.075	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,433.602	106.239		101.313		111.812		-		111.812	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

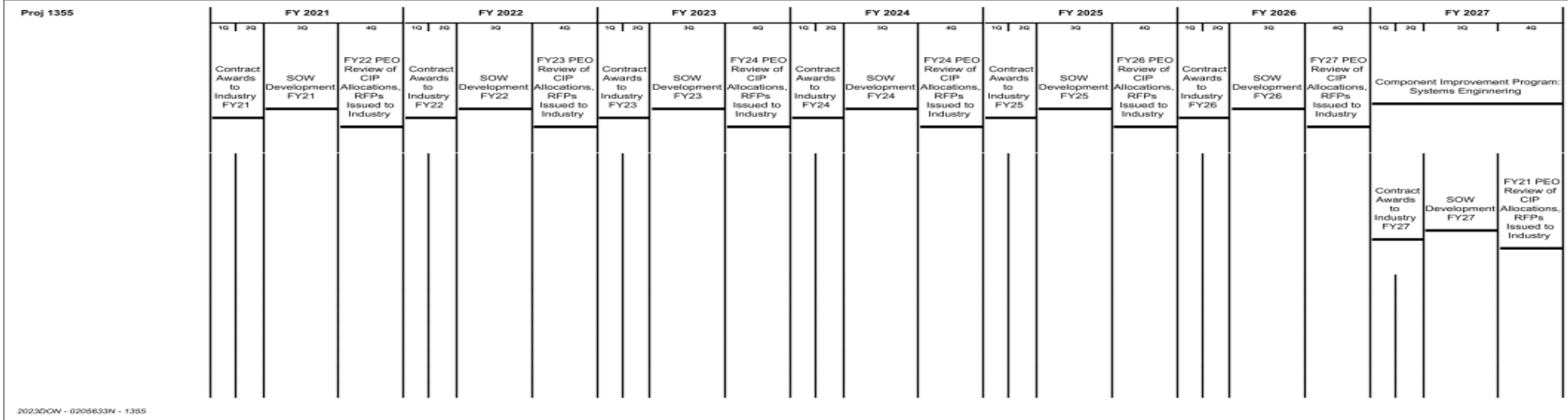


Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1355				
FY21 Contract Awards to Industry & Technical Reviews by Platform	1	2021	2	2021
SOW Development FY21	3	2021	3	2021
FY22 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2021	4	2021
FY22 Contract Awards to Industry &Technical Reviews by Platform	1	2022	2	2022
SOW Development FY22	3	2022	3	2022
FY23 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2022	4	2022
FY23 Contract Awards to Industry & Technical Reviews by Platform	1	2023	2	2023
SOW Development FY23	3	2023	3	2023
FY24 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2023	4	2023
FY24 Contract Awards to Industry & Technical Reviews by Platform	1	2024	2	2024
SOW Development FY24	3	2024	3	2024
FY25 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2024	4	2024
FY25 Contract Awards to Industry & Technical Reviews by Platform	1	2025	2	2025
SOW Development FY25	3	2025	3	2025
FY26 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2025	4	2025
FY26 Contract Awards to Industry & Technical Reviews by Platform	1	2026	2	2026
SOW Development FY26	3	2026	3	2026
FY27 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2026	4	2026
Component Improvement Program: Systems Engineering	1	2027	4	2027
FY27 Contract Awards to Industry & Technical Reviews by Platform	1	2027	2	2027
SOW Development FY27	3	2027	3	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
FY28 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2027	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 2269 / *Expeditionary Airfield Improvements*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
2269: *Expeditionary Airfield Improvements*	72.314	0.350	0.494	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	73.158
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Expeditionary Airfields (EAF) program designs, develops and tests a Sustainment Lighting System (SLS); specifically the LED CAT I Instrumented Flight Rules (IFR)/Visual Flight Rules (VFR) Approach Light System and a Night Vision Device (NVD) Compatible Runway Light System, to replace the obsolete legacy EAF lighting system. This system will support EAF Marine Aircraft Wing Support Squadrons with the required EAF Approach Light System equipment to install Forward Operating Bases and Forward Arming and Refueling Points. With the deployment of this equipment, the Marine Aircraft Wing Support Squadrons can support all United States Marine Corps (USMC) aircraft allowing the Combatant Commanders the flexibility to deploy Aircraft Combat Elements to meet anticipated threats.

Design maturity with the Lead System Integrator (LSI) for the Sustainment Lighting System (SLS) program was re-scoped in FY19 and out to focus on the development of a new Light Emitting Diode (LED) CAT I Visual Flight Rules (VFR) Approach Light System and a Night Vision Device (NVD) Compatible Runway Light System.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Expeditionary Airfield Improvements	0.350	0.494	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The EAF program designs, develops and tests a Sustainment Lighting System (SLS); specifically the LED CAT I Instrumented Flight Rules (IFR)/Visual Flight Rules (VFR) Approach Light System and a Night Vision Device (NVD) Compatible Runway Light System, to replace the obsolete legacy EAF lighting system. This system will provide EAF Marine Aircraft Wing Support Squadrons with the required EAF equipment to install Forward Operating Bases and Forward Arming and Refueling Points. With the deployment of this equipment the Marine Aircraft Wing Support Squadron can support all USMC aircraft allowing the Combatant Commanders the flexibility to deploy Aircraft Combat Elements to meet anticipated threats. This system will provide EAF Marine Aircraft Wing support Squadrons.					
FY 2022 Plans: Complete systems engineering efforts in support of the Sustainment Lighting System (SLS). Conduct a Production Readiness Review (PRR), and complete Milestone C for the SLS - LED CAT I Instrumented Flight Rules (IFR)/Visual Flight Rules (VFR) Approach Lighting System. Complete Developmental Testing (DT) and					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 2269 / *Expeditionary Airfield Improvements*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Integration/Operation Testing and conduct a Production Readiness Review (PRR) for the Night Vision Device (NVD) Compatible Runway Lighting System. ***FY 2023 Base Plans:*** None, all efforts will be complete in FY 2022. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** All developmental efforts for the Sustainment Lighting System (SLS) will be completed in FY 2022. No funding will be required in FY 2023.					
Accomplishments/Planned Programs Subtotals	0.350	0.494	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• OPN/4213: *ASE-Expeditionary Airfields*	236.655	178.647	275.461	-	275.461	134.713	133.408	128.740	132.767	Continuing	Continuing

Remarks

EAF is a portion of the 4213 budget.

D. Acquisition Strategy

Expeditionary Airfields (EAF) Sustainment Lighting System was initially an ACAT III program. As a result of the re-scope it has been re-designated as an ACAT IV M program in January 2018. The program is focused on a combination of a required capability to conduct operations in an expeditionary environment and the industrial base for airfield lighting.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 2269 / *Expeditionary Airfield Improvements*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD : Lakehurst, NJ	35.332	0.209	Nov 2020	0.369	Nov 2021	0.000		-		0.000	0.000	35.910	-
Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	22.016	0.000		0.000		0.000		-		0.000	0.000	22.016	-
		Subtotal	57.348	0.209		0.369		0.000		-		0.000	0.000	57.926	N/A

Remarks

The decrease from FY2022 to FY2023 is due to the completion of the Systems Engineering that supports the Sustainment Lighting System (SLS) efforts.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics	WR	NAWCAD : Lakehurst, NJ	3.959	0.045	Nov 2020	0.040	Nov 2021	0.000		-		0.000	0.000	4.044	-
Prior Year Support no longer funded in the FYDP	Various	Various : Various	3.637	0.000		0.000		0.000		-		0.000	0.000	3.637	-
		Subtotal	7.596	0.045		0.040		0.000		-		0.000	0.000	7.681	N/A

Remarks

The decrease from FY2022 to FY2023 is due to the completion of the Logistics efforts that support the Sustainment Lighting System (SLS) efforts.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	NAWCAD : Lakehurst, NJ	5.199	0.085	Nov 2020	0.085	Nov 2021	0.000		-		0.000	0.000	5.369	-
Opeval Test Support	WR	COMOPTEVFOR : Norfolk, VA	0.451	0.000		0.000		0.000		-		0.000	0.000	0.451	-
		Subtotal	5.650	0.085		0.085		0.000		-		0.000	0.000	5.820	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 2269 / *Expeditionary Airfield Improvements*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

The decrease from FY2022 to FY2023 is to the completion of the test and evaluation that supports the Sustainment Lighting System (SLS).

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Support Services	C/CPFF	Various : Various	1.720	0.011	Nov 2020	0.000		0.000		-		0.000	0.000	1.731	1.737
		Subtotal	1.720	0.011		0.000		0.000		-		0.000	0.000	1.731	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	72.314	0.350		0.494		0.000		-		0.000	0.000	73.158	N/A

Remarks

Prior Year includes $4.9 million of Congressional Add funding.

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 2269 / *Expeditionary Airfield Improvements*

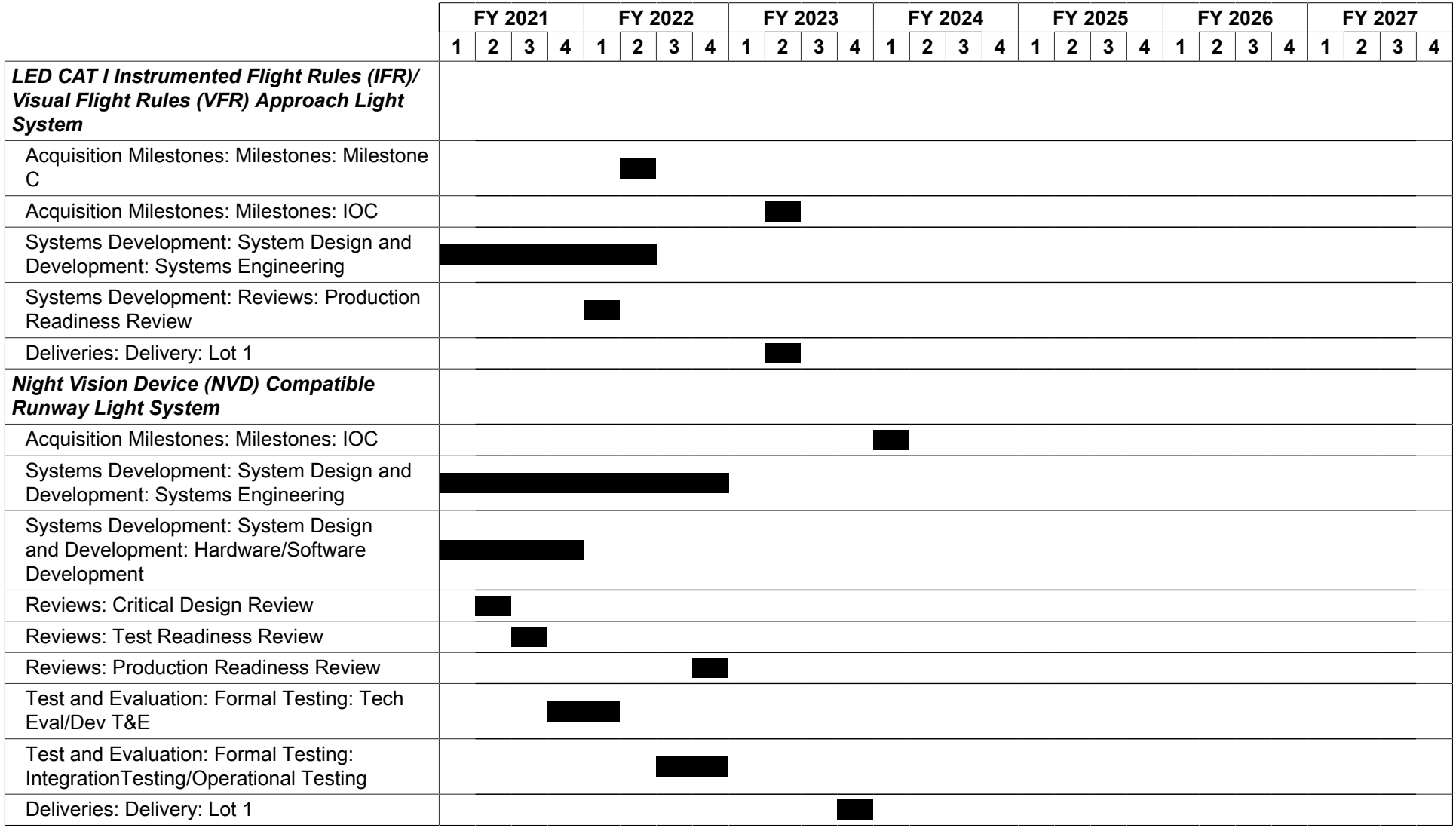


Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 2269 / *Expeditionary Airfield Improvements*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
LED CAT I Instrumented Flight Rules (IFR)/Visual Flight Rules (VFR) Approach Light System				
Acquisition Milestones: Milestones: Milestone C	2	2022	2	2022
Acquisition Milestones: Milestones: IOC	2	2023	2	2023
Systems Development: System Design and Development: Systems Engineering	1	2021	2	2022
Systems Development: Reviews: Production Readiness Review	1	2022	1	2022
Deliveries: Delivery: Lot 1	2	2023	2	2023
Night Vision Device (NVD) Compatible Runway Light System				
Acquisition Milestones: Milestones: IOC	1	2024	1	2024
Systems Development: System Design and Development: Systems Engineering	1	2021	4	2022
Systems Development: System Design and Development: Hardware/Software Development	1	2021	4	2021
Reviews: Critical Design Review	2	2021	2	2021
Reviews: Test Readiness Review	3	2021	3	2021
Reviews: Production Readiness Review	4	2022	4	2022
Test and Evaluation: Formal Testing: Tech Eval/Dev T&E	4	2021	1	2022
Test and Evaluation: Formal Testing: IntegrationTesting/Operational Testing	3	2022	4	2022
Deliveries: Delivery: Lot 1	4	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	0.000	17.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	17.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional Adds
C794: Additive manufacturing for metals
C795: FOD mitigation integration

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
Congressional Add: Additive manufacturing for metals affordability ***FY 2021 Accomplishments:*** N/A ***FY 2022 Plans:*** Funding to support Additive manufacturing for metals affordability.	0.000	7.000
Congressional Add: FOD mitigation integration ***FY 2021 Accomplishments:*** N/A ***FY 2022 Plans:*** Funding to support FOD mitigation integration.	0.000	10.000
Congressional Adds Subtotals	0.000	17.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy			Date: April 2022
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 9999 / *Congressional Adds*	

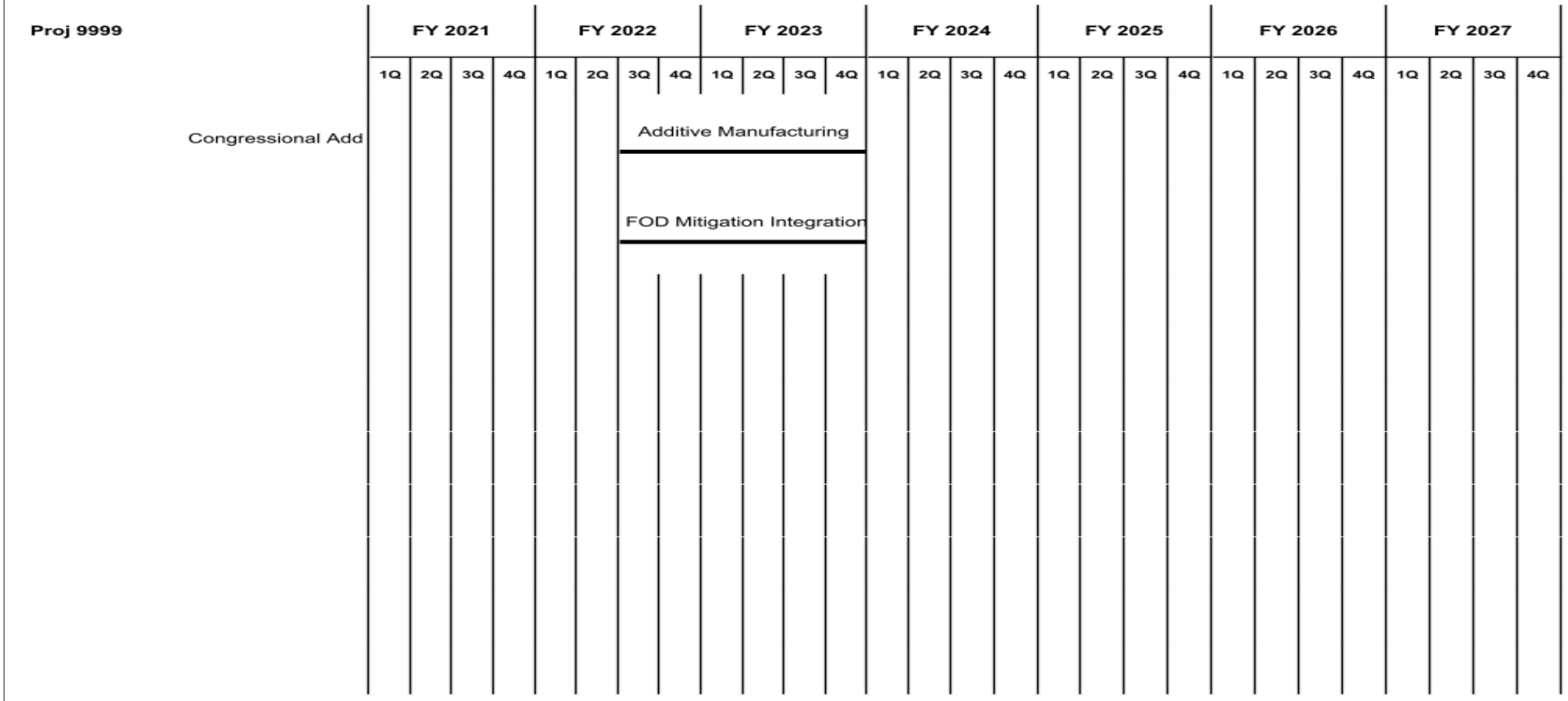
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FOD Mitigation Integration	C/CPFF	TBD : TBD	0.000	0.000		10.000	Apr 2022	0.000		-		0.000	0.000	10.000	10.000
Additive Manufacturing	WR	NAWCAD : Patuxent River, MD	0.000	0.000		2.000	Apr 2022	0.000		-		0.000	0.000	2.000	-
Additive Manufacturing	TBD	TBD : TBD	0.000	0.000		5.000	Jun 2022	0.000		-		0.000	0.000	5.000	-
		Subtotal	0.000	0.000		17.000		0.000		-		0.000	0.000	17.000	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		17.000		0.000		-		0.000	0.000	17.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 9999 / *Congressional Adds*



2023PB - 0205633N - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy		Date: April 2022
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Congressional Add: Congressional Add Additive Manufacturing	3	2022	4	2023
Congressional Add: Congressional Add FOD Mitigation Integration	3	2022	4	2023