

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	234.107	422.881	-	422.881	373.365	313.601	283.357	270.845	Continuing	Continuing
3410: F-35B C2D2	0.000	0.000	234.107	422.881	-	422.881	373.365	313.601	283.357	270.845	Continuing	Continuing
Program MDAP/MAIS Code: Project MDAP/MAIS Code(s): 198												
A. Mission Description and Budget Item Justification												
The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the United States Navy, United States Air Force, United States Marine Corps and International Partners countries. There are three variants the F-35A Conventional Takeoff and Landing variant; F-35B Short Take Off and Vertical Landing; and the F-35C Aircraft Carrier suitable variant. Maximum commonality among the variants, consistent with National Disclosure Policy, will minimize total air system life cycle costs. Planning and pre-development systems engineering for Block 4 continues as Initial Operational Capability (IOC) is met for each variant during System Development and Demonstration (SDD).												
The JSF Continuous Capability Development & Delivery(C2D2) efforts provide incremental warfighting capability improvements to maintain joint air dominance against evolving threats. Block 4 capability requirements were initiated through ongoing Service-led operational analysis of warfighting gaps identified in the Fifth Generation Fighter Modernization Initial Capabilities Document (ICD), and through F-35 JSF Block 4 Mission Decomposition analysis completed in FY2014. These analyses serve as the basis for the Block 4 (CDD), staffed through the Air Force Requirements Oversight Council (AFROC) and signed by the USAF Chief of Staff in January 2015. Joint Requirements Oversight Council (JROC) approved the CDD 21 March 2017. Modernization activities in FY2017 and FY2018 include systems engineering, risk reduction, and infrastructure required to deliver full air system Block 4 capabilities to support initial fleet availability of Block 4 upgrades in FY2021.												
Block 4 efforts designated as Block 4 include a robust weapons integration portfolio and provide new opportunities for International Partners to assess, integrate, and field unique capabilities based on global sovereign requirements.												
The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark and Norway are participants in F-35 modernization. The program shown here reflects United States Marine Corps funding. Total funding for all Service and International Partners is reported at the accomplishment/planned program level since activities support all aircraft variants. Foreign Military Sales are ongoing separately.												
PE 0604840M/N replacing PE 0604810M/N beginning in FY19 due to budget being moved from BA05 to BA07.												

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy				Date: March 2019	
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0604840M I (U)F-35B C2D2			
B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.000	259.122	228.719	-	228.719
Current President's Budget	0.000	234.107	422.881	-	422.881
Total Adjustments	0.000	-25.015	194.162	-	194.162
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-25.015			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	158.566	-	158.566
• Rate/Misc Adjustments	0.000	0.000	35.596	-	35.596
Change Summary Explanation					
The FY2020 USMC funding request was increased by \$194.162 million to fund to fully fund to the cost estimate.					
PE 0604840M/N replacing PE 0604810M/N beginning in FY19 due to budget being moved from BA05 to BA07.					
Adjusted R-4 schedule as follows:					
Updated previous milestones to reflect current F-35 Lightning II Joint Strike Fighter Acquisition Strategy, approved by USD(A&S)October 2018.					
Technical: Not applicable.					
Schedule: Not applicable.					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2				Project (Number/Name) 3410 / F-35B C2D2			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
3410: F-35B C2D2	0.000	0.000	234.107	422.881	-	422.881	373.365	313.601	283.357	270.845	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 198												
Note												
Total cost, including International partner contributions, USN, USMC, and USAF funding: FY2020: \$1,782.964M.												
R-2A table shown above reflects service funding only.												
R-2A (section B)/R-3 displays combined program for JSF Continuous Capability Development and Delivery (C2D2).												
JSF C2D2 Includes: USAF PE 0207142F BPAC 675346 USN PE 0604840N/ Project Unit 2936 USMC PE 0604840M Project Unit 3410 USN PE 0604810N/ Project Unit 2936 USMC PE 0604810M Project Unit 2935 USN PE 0604800N Project Unit 9999 (FY14): \$1.500M USMC PE 0604800M Project Unit 9999 (FY14): \$1.500M International Partner Contributions												
A. Mission Description and Budget Item Justification												
F-35 C2D2 provides continuing incremental upgrades of the three F-35 variants and associated ground equipment. Upgrades are essential capabilities for Air Interdiction and Strategic Attack, Close Air Support, Suppression and Destruction of Enemy Air Defenses, Offensive and Defensive Counter Air and expanded Surface Warfare. The C2D2 acquisition strategy is based upon incremental deliveries of capabilities. The strategy includes periodic deliveries with a focus on hardware, tech refresh and softwre. C2D2 capability planning includes an efficient transition from F-35 SDD to C2D2. As SDD development activities ramp down C2D2 will assume responsibility for improvements and modernization efforts.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)							FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	
Title: Product Development - Block 4 Planning and Systems Engineering							0.000	213.559	622.265	0.000	622.265	
Articles:							-	-	-	-	-	

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy				Date: March 2019		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2		Project (Number/Name) 3410 / F-35B C2D2		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Description: Block 4 Planning and Systems Engineering preliminarily design and delta System requirements Review (SRR) for all variants of the F-35 Aircraft. Modernization efforts is the Requirements Decomposition of capabilities for the Block 4 upgrade to include sub-blocks. This is a continuation of the previous Block 4 Requirements Decomposition effort which will include activities leading up to a successful System Functional Review (SFR) and select facility upgrades required for Block 4 research, development, test and evaluation. Included in Block 4 are upgraded capabilities and continuous improvements to maintain Air System viability against evolving threats indicated in the Electronic Warfare Initial Capabilities Document (ICD), the Fifth Generation Fighter Modernization ICD, and the Block 4 Capability Development Document (CDD), reduce life cycle cost, and improve operational suitability. Expected completion of Block 4 System Requirements Review (SRR) and a Preliminary Design Review (PDR) will address additional Block 4 capabilities requirements. Continuous risk reduction, preplanning for subsequent Block 4 Modernization events, and investments to deliver the full Block 4 Air System capabilities are included. FY 2019 Plans: Continued from PE 0604810M/N. Continue Block 4 Phase II contract development. Conduct Block SRR and PDR activities as well as continuing risk reduction and planning. Continuing development and maturity of key long lead capabilities and service unique weapons. Begin Developmental Flight Test of initial Block 4 capabilities. FY 2020 Base Plans: Continue Block 4 contract development. Continue Post-PDR risk reduction activities to include completion of Developmental Flight Test. Continue with Agile development of capabilities through Developmental Flight Test. Continue development and maturity of key long lead capabilities and service unique weapons. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to program growth as Block 4 capabilities and development efforts ramp up.						
Title: Product Development - Technology Refresh 3 (TR-3) Articles: Description: Technology Refresh 3 (TR-3) Design Competition, Development, Integration, and Test. This is the design phase of TR-3 program fully supports Block 3F functionality and allows incorporation of all Block 4		0.000 -	98.000 -	195.600 -	0.000 -	195.600 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019			
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2	Project (Number/Name) 3410 / F-35B C2D2			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
capabilities documented in the System Requirements Document (SRD). TR-3 hardware redesign is required to support 4X processing growth factor based on the current processing estimates for all 3F capabilities. Redesign of TR-3 subsystems Integrated Core Processor (ICP), Aircraft Memory System (AMS), and Panoramic Cockpit Display (PCD)) configurations will contain new backplane technology, commercial operating systems, and modified middleware necessary to take the design of the TR-3 System through Critical Design Review (CDR). FY 2019 Plans: Continued from PE 0604810M/N. The TR-3 program will continue design toward Critical Design Review of the Integrated Core Processor (ICP), Panoramic Cockpit Display (PCD), and Aircraft Memory System (AMS). In addition the TR-3 program will prototype the middleware software that will enable F-35's new messaging architecture delivered as part of TR-3 and ensure compatibility with current F-35 sensors. Additionally the initial lab stand up will occur to ensure timely first article delivery to the production line in FY23. FY 2020 Base Plans: The TR-3 program will complete design for Critical Design Review of the Integrated Core Processor (ICP), Panoramic Cockpit Display (PCD), and Aircraft Memory System (AMS). In addition the TR-3 program will continue with the development of middleware software to ensure and validate compatibility with current F-35 sensors and weapon loads. Continued lab test and verification will ensure timely first article delivery to the production line by FY23. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to program growth as Block 4 capabilities and development efforts ramp up.						
Title: Infrastructure and Support Costs Articles: Description: Funding will support infrastructure investment planning and other test planning activities required for Block 4 development, integration, test and evaluation. Funding related to the Integrated Test Force, government, and contractor labor. Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, autonomic logistics development, joint reprogramming enterprise, modeling and		0.000 -	185.163 -	205.811 -	0.000 -	205.811 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy				Date: March 2019		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2		Project (Number/Name) 3410 / F-35B C2D2		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
simulation environment activities and training investment support. Other costs in support of ranges, chase planes and DT site operations.						
FY 2019 Plans: Continued from PE 0604810M/N.						
Continue development support for defining, managing and acquiring the F-35 capability enhancements identified in approved requirements documents. Transfer of integrated test force requirement to Block 4 as F-35 SDD draws to closure. USAF only will fund additional PMA to transition to a final hybrid product support integrator (HPSI) which will support sustainment analysis with product support managers, focused on long term strategic planning and transition to a final integrated support plan. Conduct strategic basing analysis to determine permanent location for core of HPSI.						
FY 2020 Base Plans: Continue development support for defining, managing and acquiring the F-35 capability enhancements identified in approved requirements documents. Transfer of integrated test force requirement to Block 4 as F-35 SDD draws to closure. USAF only will fund additional PMA to transition to a final hybrid product support integrator (HPSI) which will support sustainment analysis with product support managers, focused on long term strategic planning and transition to a final integrated support plan. Conduct strategic basing analysis to determine permanent location for core of HPSI.						
FY 2020 OCO Plans: N/A						
FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to program growth as Block 4 capabilities and development efforts ramp up.						
Title: Test and Evaluation		0.000	480.714	601.355	0.000	601.355
Articles:		-	-	-	-	-
Description: Developmental Test activities in support of Block 4, to include Lockheed Martin and Pratt & Whitney support at both test sites. Non-recurring engineering required to plan for the service life extension of existing DT aircraft and modification necessary to bring DT aircraft fleet to a more production representative and sustainable configuration. Additional upgrades required to support development and evaluation of improvements driven by changes in the threat environment and as identified in the Electronic Warfare ICD, the Fifth Generation Fighter Modernization ICS, and the Block 4 Capability Development Document (CDD).						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy				Date: March 2019		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2		Project (Number/Name) 3410 / F-35B C2D2		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
FY 2019 Plans: Continued from PE 0604810M/N. Funding will support flight test execution to ensure Block 4 capabilities are delivered as designed. Funding also supports investment planning and prioritization required to maintain future development capabilities. This includes instrumenting new DT aircraft, ordering the replacement of pre-LRIP aircraft engines, continuing the FY18 NRE work, and delivery and install of upgraded hardware as a part of the DT aircraft viability effort, as well as test engine support. Additionally, this funding supports laboratory upgrades required to support development and verification of capabilities in a relevant environment. FY 2020 Base Plans: Funding will support flight test execution to ensure Block 4 capabilities are delivered as designed. Funding also supports investment planning and prioritization required to maintain future development capabilities. This includes continuing work on instrumenting new DT aircraft, and delivery and install of upgraded hardware as part of the DT aircraft viability effort, as well as test engine support. Additionally, this funding supports laboratory upgrades required to support development and verification of capabilities in a relevant environment. Efforts include non-recurring engineering and procurement of a test article to evaluate service life of F-35B STOVL Aircraft. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to program growth as Block 4 capabilities and development efforts ramp up.						
Title: Autonomic Logistics Information System (ALIS) Development Articles: Description: Autonomic Logistics Information System (ALIS) continues to deliver the core logistics infrastructure requirements for the F-35 enterprise. ALIS includes features such as aircraft scheduling, training delivery and record keeping, technical data delivery, supply chain management, maintenance management, pilot and maintenance debriefing, and mission planning. The ALIS development program is focused on two primary lines of effort: Current ALIS which includes Agile DevOps, and ALIS Next. Current ALIS is focused on developing new software that uses the current software as a baseline. Upcoming software releases include 3.5, 3.6 and 3.7 builds. The required new capabilities have been defined by the		0.000 -	120.926 -	157.933 -	0.000 -	157.933 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy				Date: March 2019		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2		Project (Number/Name) 3410 / F-35B C2D2		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
US Services and include cybersecurity updates, decentralized maintenance, Prognostic Health Monitoring (PHM), Training Management System upgrades, Personnel Flight Equipment (PFE), Low Observable Health Assessment System (LOHAS), Corrosion Management System, squadron resource sharing, and new propulsion capabilities. All aspects of ALIS software are included in current ALIS development. The software development will have applicability to the Standard Operating Units (SOU), Central Points of Entry (CPE), and the Autonomic Logistics Operating Unit (ALOU) for both classified and unclassified hardware. Under the umbrella of current ALIS, an Agile DevOps pilot is working to rapidly deliver capability updates to the fleet and change the way that current ALIS delivers software.						
ALIS Next is the re-architecture effort that began in FY19 and will complete fielding in FY23. ALIS Next will redesign ALIS software, data, and hardware architecture with a focus on cybersecurity, affordability, resiliency, and supportability.						
FY 2019 Plans: Continue Current ALIS software development efforts and deliver ALIS build 3.5, which contains critical software stabilization improvements. Current ALIS efforts will also continue to transition to a pure Agile DevOps development framework. ALIS Next efforts will produce a reference architecture and a detailed transition plan to the new architecture.						
FY 2020 Base Plans: Continue Current ALIS software development efforts as well as begin ALIS build 3.6. Increase the number of DevOps product teams and begin to merge with Current ALIS development efforts. Refactor ALIS software in accordance with the ALIS Next architecture developed in FY19.						
FY 2020 OCO Plans: N/A						
FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to program growth as well as Current ALIS and ALIS Next efforts continue to ramp up.						
Accomplishments/Planned Programs Subtotals		0.000	1,098.362	1,782.964	0.000	1,782.964
USAF Continuous Capability Development and Delivery		-	426.494	694.455	-	694.455
F-35C C2D2		-	227.998	383.741	-	383.741

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2		Project (Number/Name) 3410 / F-35B C2D2	

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
International Continuous Capability Development and Delivery					-	209.763	281.887	-	281.887
Navy Subtotals					0.000	234.107	422.881	0.000	422.881

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• RDT&E/0604840N/2936: F-35C C2D2	0.000	227.998	383.741	-	383.741	351.536	263.066	252.898	245.204	Continuing	Continuing
• USAF/FOM/0207142F: USAF Continuous Capability Development and Delivery	0.000	426.494	694.455	-	694.455	786.513	550.100	451.737	522.023	Continuing	Continuing
• International: <i>International Continuous Capability Development and Delivery</i>	0.000	209.763	281.887	-	281.887	339.139	224.501	189.728	158.811	Continuing	Continuing

Remarks

This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Air Force. Program Element 0604800N/0604800M continues USN development efforts budgeted in 0603800N prior to FY2002. The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark, and Norway are participants in the SDD phase of JSF.

PE 0604810M/N ending in FY18 and continues in PE 0604840M/N as budget moves from BA05 to BA07.

D. Acquisition Strategy

The C2D2 acquisition strategy is to employ both Cost and Fixed Price Incentive contracts for the Block 4 engineering and development efforts. A new modernization contract structure will be established for all post SDD Block 4 efforts. In addition, a separate Basic Ordering Agreement or Indefinite Quantity/Indefinite Delivery contract is planned to provide a long term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future C2D2 capabilities.

E. Performance Metrics

Overall Block 4 Performance Metrics will reflect Key Performance Parameters established in the F-35 Block 4 Capability Development Document.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2				Project (Number/Name) 3410 / F-35B C2D2					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prime LM 18-C-1004 (Phase II)	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.000		142.759	Dec 2018	416.615	Dec 2019	-		416.615	1,031.289	1,590.663	1,309.737
Prime LM 14-G-0020 (TR3)	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.000		98.000	Dec 2018	195.600	Dec 2019	-		195.600	510.000	803.600	685.696
Prime LM BOA 0020 (Nimble Lightning + Pilot Training)	C/CPFF	Various : Various	0.000	0.000		4.500	Jan 2019	4.650	Jan 2020	-		4.650	17.500	26.650	22.260
Flight Test Asset	Various	Lockheed Martin : FT. Worth, TX	0.000	0.000		139.110	Jan 2019	105.000	Jan 2020	-		105.000	406.000	650.110	491.346
Prime LM DT AC Viability	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.000		32.750	Jan 2019	79.000	Jan 2020	-		79.000	415.000	526.750	515.100
Prime PW Propulsion	SS/CPFF	Pratt Whitney : East Hartford, Connecticut	0.000	0.000		136.000	Oct 2018	82.000	Oct 2019	-		82.000	220.000	438.000	269.450
Prime LM Developmental Foundation Contract	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	0.000		75.800	Nov 2018	201.000	Nov 2019	-		201.000	345.000	621.800	445.550
Prime TBD JRE Dev.	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.000		35.000	Jan 2019	85.200	Dec 2019	-		85.200	Continuing	Continuing	Continuing
Prime LM ALIS Next	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.000		16.411	Dec 2018	68.000	Dec 2019	-		68.000	Continuing	Continuing	Continuing
Prime LM ALIS Dev	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	0.000		50.000	Jul 2019	58.000	Dec 2019	-		58.000	0.000	108.000	-
Prime LM F-35B Fatigue Test Article	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.000		0.000		21.300	Jan 2020	-		21.300	0.000	21.300	-
Training Investments	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	0.000		0.000		45.000	Dec 2019	-		45.000	0.000	45.000	-
Systems Engineering	Various	Various : Various	0.000	0.000		31.300	Jan 2019	49.500	Jan 2020	-		49.500	88.000	168.800	106.423
Subtotal			0.000	0.000		761.630		1,410.865		-		1,410.865	Continuing	Continuing	N/A
Remarks															
FY2019 & FY2020 Product Development continued from PE 0604810M/N.															
Combined ECASE contract line into Systems Engineering line to delete duplicative line items as ECASE contract is a vehicle used for Systems Engineering efforts.															
Block 4 Modernization on R-2A includes Phase II, Nimble Lightning, JRE, Training Investments & Systems Engineering.															
Flight Test assets include weapons to support Test and assests needed for flight test instrumentation.															
Broke out Prime LM TBD JRE Dev line seperately from Block 4 Phase II contract line due to change in contracting strategy.															

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy **Date:** March 2019

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2	Project (Number/Name) 3410 / F-35B C2D2
--	---	---

Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Broke out Prime LM Current ALIS Dev & Prime LM ALIS Next efforts seperately from ALIS Re-architecture as directed by OSD(C). Added F-35B Fatigue Test Article and Training Investments lines in FY20.															

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JSE/IPT Development Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		32.400	Dec 2018	48.740	Dec 2019	-		48.740	Continuing	Continuing	Continuing
Development Support	WR	NAWCWD : China Lake, CA	0.000	0.000		6.275	Dec 2018	7.850	Dec 2019	-		7.850	43.083	57.208	-
Development Support	Various	Eglin : Various	0.000	0.000		3.500	Dec 2018	4.500	Dec 2019	-		4.500	15.268	23.268	-
Development Support	Various	Various : Various	0.000	0.000		22.212	Dec 2018	27.000	Dec 2019	-		27.000	34.513	83.725	-
Development Support	MIPR	AFRL : Wright Patterson AFB	0.000	0.000		3.978	Dec 2018	7.500	Dec 2019	-		7.500	13.923	25.401	-
JRE Development Support	C/BA	Various : Various	0.000	0.000		18.300	Dec 2018	25.900	Dec 2019	-		25.900	0.000	44.200	-
ALIS Development Support	Various	Various : Various	0.000	0.000		35.220	Dec 2018	16.933	Dec 2019	-		16.933	0.000	52.153	-
ALIS Next Development Support	MIPR	Various : Various	0.000	0.000		19.295	Dec 2018	15.000	Dec 2019	-		15.000	0.000	34.295	-
Subtotal			0.000	0.000		141.180		153.423		-		153.423	Continuing	Continuing	N/A

Remarks
 FY2019 & FY2020 Support continued from PE 0604810M/N.
 Broke out JRE and ALIS Development Support from Block 4 Phase II contract line due to change in contracting strategy.
 Broke out ALIS Next Development Support line per direction to add more detailed ALIS information.

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD : Patuxent River, MD	0.000	0.000		54.000	Dec 2018	65.000	Dec 2019	-		65.000	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy **Date:** March 2019

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2	Project (Number/Name) 3410 / F-35B C2D2
--	---	---

Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCWD : China Lake , CA	0.000	0.000		6.500	Dec 2018	11.200	Dec 2019	-		11.200	40.470	58.170	-
Developmental Test & Evaluation Edwards/AFB	Various	Edwards AFB : Edwards AFB, CA	0.000	0.000		26.554	Dec 2018	22.455	Dec 2019	-		22.455	110.470	159.479	-
Developmental Test & Evaluation	Various	Various : Various	0.000	0.000		3.500	Dec 2018	4.200	Dec 2019	-		4.200	57.087	64.787	-
Operational Test & Evaluation	WR	Kirtland AFB, NM : Kirtland AFB, NM	0.000	0.000		6.500	Dec 2018	31.500	Dec 2019	-		31.500	72.500	110.500	-
Subtotal			0.000	0.000		97.054		134.355		-		134.355	Continuing	Continuing	N/A

Remarks

FY2019 & FY2020 Test and Evaluation continued from PE 0604810M/N.

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AFLCMC Civilian Pay	C/BA	AFLCMC CIVPAY : Wright Patterson, AFB	0.000	0.000		42.885	Oct 2018	44.172	Oct 2019	-		44.172	231.610	318.667	-
HPSI Program Spt.	Various	AFLCMC : Wright Patterson, AFB	0.000	0.000		9.600	Oct 2018	0.000	Oct 2019	-		0.000	Continuing	Continuing	Continuing
Financial Mgmt Database Support IDS	C/BA	Various : Various	0.000	0.000		1.300	Dec 2018	1.565	Dec 2019	-		1.565	4.301	7.166	-
Earned Value/Finance/ Cost ACT-I	C/BA	Various : Various	0.000	0.000		4.079	Dec 2018	4.201	Dec 2019	-		4.201	23.518	31.798	-
Systems System High BOS	C/BA	Various : Various	0.000	0.000		8.532	Dec 2018	8.788	Dec 2019	-		8.788	45.342	62.662	-
Other CIO Services	Various	Various : Various	0.000	0.000		0.404	Dec 2018	2.127	Dec 2019	-		2.127	22.579	25.110	-
Other Core Civ Pay	WR	NAWCAD/WD : Various	0.000	0.000		21.685	Dec 2018	11.000	Dec 2019	-		11.000	0.000	32.685	-
Other Core Contractor Spt.	WR	Various : Various	0.000	0.000		6.437	Dec 2018	8.218	Dec 2019	-		8.218	0.000	14.655	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2				Project (Number/Name) 3410 / F-35B C2D2					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	Various : Various	0.000	0.000		3.576	Oct 2018	4.250	Oct 2019	-		4.250	8.569	16.395	-
Subtotal			0.000	0.000		98.498		84.321		-		84.321	Continuing	Continuing	N/A
Remarks															
Breaking out HPSI AFLCMC funding from AFLCMC Civilian Pay line for visibility. Added Other Core Civ Pay & Other Core Contractor Sppt to account for program operations support. Beginning in FY20 HPSI will be in a seperate BPAC and no longer included in C2D2 budget docs.															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Subtotals			0.000	0.000		1,098.362		1,782.964		-		1,782.964	Continuing	Continuing	N/A
USAF Continuous Capability Development and Delivery			-	-		426.494		694.455		-		694.455			-
F-35C C2D2			-	-		227.998		383.741		-		383.741			-
International Continuous Capability Development and Delivery			-	-		209.763		281.887		-		281.887			-
Project Cost Totals			0.000	0.000		234.107		422.881		-		422.881	0.000	0.000	-
Remarks															
Subtotals and totals may not add due to rounding.															
Prior Year reflects \$0M due to PE 0604810M/N ending in FY18 and being replaced by PE 0604840M/N in FY19 as budget moves from BA05 to BA07.															
FY 2019 reflects \$426.494M USAF/\$227.998M USN/\$234.107M USMC/\$209.763M International/Total \$1,098.362M FY 2020 reflects \$694.455M USAF/\$383.741M USN/\$422.881M USMC/\$281.887M International/Total \$1,782.964M															
R-2A (section B)/R-3 displays total combined program (i.e. not Service-specific), including International partners.															
JSF Continuous Capability Development and Delivery (C2D2) Includes: USAF PE 0207142F BPAC 675346 USN PE 0604810N Project Unit 2936 - ends FY18 USMC PE 0604810M Project Unit 2935 - ends FY18 USN PE 0604840N Project Unit 2936 - begins FY19 USMC PE 0604840M Project Unit 2935 - begins FY19 USN PE 0604800N Project Unit 9999 (FY14): \$1.500 USMC PE 0604800M Project Unit 999 (FY14) : \$1.500															

UNCLASSIFIED

PE 0604840M: (U)F-35B C2D2
Navy

R-1 Line #203

Appropriation/Budget Activity 1319 / 7													R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2										Project (Number/Name) 3410 / F-35B C2D2									
Proj 3410					FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
					1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Systems Engineering & Development																																
					Phase II Development																											
																	Systems Engineering & Integration Contract															
					Development Foundation																Development & Maturation IDIQ Contract											
Agile Process & Capability Development																																
Verification and Validation																																
					DT Aircraft Upgrades																											
					Integrated Test																											
																							TR-3 Operational Test									
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft)																																
					LOT 11 (AF 48, USN 8, USMC 18)				LOT 12 (AF 56, USN 10, USMC 24)				LOT 13 (AF 56, USN 15, USMC 22)				LOT 14 (AF 45, USN 20, USMC 10)				LOT 15 (AF 48, USN 18, USMC 15)				LOT 16 (AF 48, USN 29, USMC 17)							

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / (U)F-35B C2D2	Project (Number/Name) 3410 / F-35B C2D2	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 3410</i>				
Systems Engineering & Development: Phase II Development	1	2019	1	2023
Systems Engineering & Development: Systems Engineering & Integration Contract	4	2021	4	2024
Systems Engineering & Development: Development Foundation	1	2019	1	2023
Systems Engineering & Development: Development & Maturation IDIQ Contract	3	2023	4	2024
Agile Process & Capability Development: Agile Process & Capability Development	1	2019	4	2024
Verification and Validation: DT Aircraft Upgrades	1	2019	3	2021
Verification and Validation: Integrated Test	1	2019	4	2024
Verification and Validation: TR-3 Operational Test	4	2023	3	2024
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 11 Full Funding / Production / Delivery	1	2019	4	2019
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 12 Full Funding / Production / Delivery	1	2020	4	2020
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 13 Full Funding / Production / Delivery	1	2021	4	2021
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 14 Full Funding / Production / Delivery	1	2022	4	2022
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 15 Full Funding / Production / Delivery	1	2023	4	2023
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 16 Full Funding / Production / Delivery	1	2024	4	2024