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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604800N / <i>JNT Strike Fighter (JSF) - EMD</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	51,482.150	63.535	1.490	0.250	-	0.250	0.264	0.247	0.247	0.252	0.000	51,548.435
2261: <i>Joint Strike Fighter EMD</i>	50,976.248	58.769	1.490	0.250	-	0.250	0.264	0.247	0.247	0.252	0.000	51,037.767
3352: <i>F-35C Sustainment/ Capability Enhancements</i>	505.902	4.766	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	510.668

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 USN, USAF, USMC and allies. The three variants are the F-35A Conventional Takeoff and Landing; F-35B Short Takeoff and Vertical Landing; and the F-35C Aircraft Carrier suitable variant. The F-35A will be a stealthy multi-role aircraft, primary air-to-ground for the Air Force to replace the F-16 and A-10 and complement the F-22. The F-35B variant will be a multi-role strike fighter aircraft to replace the AV-8B and F/A-18 for the Marine Corps, replace the Sea Harrier and GR 7 for the United Kingdom, and replace the AV-8 currently employed by the Italian Navy. The F-35C will provide the Department of the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F.

The United Kingdom, Italy, Netherlands, Canada, Australia, Denmark, Norway, and Foreign Military Sales customers are also participants in the JSF program. The program shown here reflects USN, USMC, USAF, and International Partner funding.

Funding at the accomplishment/planned program level is reported as the total of all services and partners as these activities support all aircraft variants.

The System Development and Demonstration (SDD) budget funds a total quantity of 20 RDT&E test articles to include 6 ground test articles and 14 flight test articles for USN, USMC, and USAF use.

- FY07: 1 F-35A flight test article
- FY08: 1 F-35B flight test article; 1 F-35B ground test article
- FY09: 1 F-35B flight test article; 2 F-35A ground test articles
- FY10: 6 flight test articles: 3 F-35A, 2 F-35B, 1 F-35C; 3 ground test articles: 1 F-35B, 2 F-35C
- FY11: 4 flight test articles: 1 F-35A, 1 F-35B, 2 F-35C
- FY13: 1 F-35C flight test article

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SDD because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	65.494	1.490	0.238	-	0.238
Current President's Budget	63.535	1.490	0.250	-	0.250
Total Adjustments	-1.959	0.000	0.012	-	0.012
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.959	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.012	-	0.012

Change Summary Explanation

FY19 USN control decreased by \$1.959M due to SBIR Transfer.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy										Date: February 2020		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD				Project (Number/Name) 2261 / Joint Strike Fighter EMD			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
2261: Joint Strike Fighter EMD	50,976.248	58.769	1.490	0.250	-	0.250	0.264	0.247	0.247	0.252	0.000	51,037.767
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 198												

Note

Total cost including United States Navy (USN), United States Marine Corps (USMC), International partner contributions and United States Air Force (USAF) funding are: FY19 \$191.46M, FY20 \$10.828M, and FY21 \$6.234M R-2 data reflects variant unique funding only.

R-2A(section B)/R-3 displays total combined Program (i.e. not Service specific), including International partners.

F-35 EMD Includes:

- USAF PE 0604800F BPAC 653831
- USN PE 0604800N Project Unit 2261
- USMC PE 0604800M Project Unit 2262

D&S Includes:

- USAF PE 0604800F BPAC 653832
- USN PE 0604800N Project Unit 3352
- USMC PE 0604800M Project Unit 3350

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 USN, USAF, USMC and allies. The three variants are the F-35A Conventional Takeoff and Landing; F-35B Short Takeoff and Vertical Landing; and the F-35C Aircraft Carrier suitable variant.

The F-35A will be a stealthy multi-role aircraft, primary air-to-ground for the Air Force to replace the F-16 and A-10 and complement the F-22. The F-35B variant will be a multi-role strike fighter aircraft to replace the AV-8B and F/A-18 for the Marine Corps, replace the Sea Harrier and GR 7 for the United Kingdom, and replace the AV-8 currently employed by the Italian Navy. The F-35C will provide the Department of the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F.

The United Kingdom, Italy, Netherlands, Canada, Australia, Denmark, Norway, and Foreign Military Sales customers are also participants in the JSF program. The program shown here reflects USN, USMC, USAF, and International Partner funding.

The top-line Program Element reflects the unique variant for each Service. Funding at the accomplishment/planned program level is reported as the total of all services and partners as these activities support all aircraft variants.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD

The System Development and Demonstration (SDD) budget funds a total quantity of 20 RDT&E test articles to include 6 ground test articles and 14 flight test articles for USN, USAF, and USMC use.

- FY07: 1 F-35A flight test article
- FY08: 1 F-35B flight test article; 1 F-35B ground test article
- FY09: 1 F-35B flight test article; 2 F-35A ground test articles
- FY10: 6 flight test articles: 3 F-35A, 2 F-35B, 1 F-35C; 3 ground test articles: 1 F-35B, 2 F-35C
- FY11: 4 flight test articles: 1 F-35A, 1 F-35B, 2 F-35C
- FY13: 1 F-35C flight test article

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: System Development and Demonstration (SDD)	103.767	10.828	6.234	0.000	6.234
Articles:	-	-	-	-	-
Description: SDD execution of the Air System (Lockheed Martin) including International Commonality Efforts; includes airframe, vehicle and mission systems, autonomic logistics, systems engineering & test efforts.					
FY 2020 Plans: Continue SDD execution of Air System (Lockheed Martin), including International Commonality Effort which includes, airframe, vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts. Activity aligned to IMS in accordance with variant IOC. Conduct SDD closure activities including FCA/PCA(Functional Configuration Audit/Production Configuration Audit) in order to establish production specification and transition to post-SDD, production and sustainment.					
FY 2021 Base Plans: Continue SDD execution of Air System (Lockheed Martin), including International Commonality Effort which includes, airframe, vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts. Activity aligned to IMS in accordance with variant IOC. Continue to conduct SDD closure activities including FCA/PCA (Functional Configuration Audit/Production Configuration Audit) in order to establish production specification and transition to post-SDD, production and sustainment.					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy			Date: February 2020		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
FY21 funding decrease is due to reduction in domestic and International funding as SDD phase draws to closure.					
Title: Test and Evaluation (T&E)					
Articles:					
	64.613	0.000	0.000	0.000	0.000
	-	-	-	-	-
Description: Government-executed Initial Operational Test & Evaluation (IOT&E) activities. Elements of IOT&E include preparation, execution, & evaluation of flight and ground based tests which assess all aspects (lethality, mission effectiveness, cyber security) of the F-35 Air System in an operationally relevant environment.					
FY 2020 Plans: N/A					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
Title: Development Support					
Articles:					
	23.080	0.000	0.000	0.000	0.000
	-	-	-	-	-
Description: SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.					
FY 2020 Plans: N/A					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals					
	191.460	10.828	6.234	0.000	6.234
	67.999	7.628	5.423	-	5.423
	64.692	1.710	0.561	-	0.561
Navy Subtotals					
	58.769	1.490	0.250	0.000	0.250

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• RDT&E/0604800F: F-35A <i>Joint Strike Fighter SDD</i>	67.999	7.628	5.423	-	5.423	0.000	0.000	0.000	0.000	0.000	22,333.758
• RDT&E/0604800M/2262: F-35B <i>JT Strike Fighter (JSF) - EMD</i>	64.692	1.710	0.561	-	0.561	0.584	0.596	0.608	0.621	0.000	51,025.620
• APN/0605B: F-35B Joint <i>Strike Fighter STOVL Spares</i>	129.853	258.779	194.608	-	194.608	126.970	136.770	74.496	75.957	3,363.198	4,360.631
• APN/0605C: F-35C Joint <i>Strike Fighter CV Spares</i>	68.106	97.612	112.265	-	112.265	221.402	93.971	98.303	125.515	Continuing	Continuing
• USAF/FOM/0207142F: <i>USAF Continuous Capability Development and Delivery</i>	414.998	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• APN/0592: F-35B STOVL Series	41.218	65.585	153.588	-	153.588	183.018	278.209	278.216	226.263	173.744	1,986.706
• APN/0593: F-35C CV Series	25.483	15.358	105.452	-	105.452	98.847	178.094	172.164	177.534	Continuing	Continuing
• APN/0147: F-35C <i>Joint Strike Fighter CV</i>	2,241.641	2,321.012	2,462.310	-	2,462.310	2,500.192	2,975.220	2,985.069	3,136.722	18,448.497	54,263.059
• APN/0152C: F-35B Joint <i>Strike Fighter STOVL AP</i>	114.246	291.804	303.035	-	303.035	221.554	231.317	234.344	239.031	1,855.779	5,427.784
• APN/0152: F-35B Joint <i>Strike Fighter STOVL</i>	2,927.101	2,102.833	1,358.947	-	1,358.947	2,182.725	2,546.883	2,710.704	2,779.002	19,651.417	50,085.487
• C2D2 International: <i>International Continuous Capability Development and Delivery</i>	209.763	258.004	359.626	-	359.626	285.969	211.292	208.053	177.542	Continuing	Continuing
• APN/0147C: F-35C <i>Joint Strike Fighter CV AP</i>	140.010	339.053	330.386	-	330.386	261.923	246.494	265.615	248.487	539.882	4,168.045
• RDT&E/0604840N/2936: <i>F-35C C2D2</i>	215.366	354.960	413.875	-	413.875	284.709	198.878	214.861	199.694	Continuing	Continuing
• RDT&E/0604840M/3410: <i>F-35B C2D2</i>	222.644	391.165	379.549	-	379.549	323.597	294.404	283.981	244.932	Continuing	Continuing
• 0604840F F-35A C2D2: <i>USAF Continuous Capability Development and Delivery</i>	0.000	642.371	785.336	-	785.336	549.279	450.915	521.012	586.709	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

This is a joint program with no executive service. Service Acquisition Execution (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Navy.

Program Element 0604800N/0604800M continues USN development efforts budgeted in 0603800N prior to 2002.

The United Kingdom, Italy, Netherlands, Canada, Australia, Denmark, and Norway are participants in the SDD phase of JSF.

Note: The USAF/USN/USMC procurement lines include Aircraft Procurement and Advanced Procurement only. Initial Spares and Repair Parts for all services are reflected in separate lines. International Partner Funding also includes funds provided under the Italy and Netherlands Bilateral agreements.

RELATED RDT&E: Funding prior to JSF SDD (FY94-FY01): USN PE 0603800N \$1,950.617M; USAF PE 0603800F \$1,907.352M; DARPA PE 0603800E \$118.056M; and International Partner contributions of \$253.921M for a total of \$4,229.946M.

D. Acquisition Strategy

The SDD program consists of a cost-reimbursement contract awarded to Lockheed Martin Aeronautics Company to develop the F-35 Air System, consisting of three aircraft variants and its associated logistics support system, for the U.S. Services and international participants. Similarly, a cost-reimbursement contract was awarded to Pratt & Whitney to develop the F135 propulsion system. Ground and flight testing will be conducted during development to accomplish validation and verification, with the extensive use of modeling and simulation to offset the risk of this large, complex, and concurrent lifecycle program. A comprehensive logistics support environment, including an integrated training system for aircrew, maintenance, and support personnel, is also being developed.

On 25 April 2011, the Department of Defense terminated the development of the General Electric Rolls-Royce Fighter Engine Team F136 propulsion system.

The F-35 Program has made international involvement a key element of the acquisition strategy. This includes international partnership in the development, production, and sustainment phases of the lifecycle. Additional international participation includes Foreign Military Sales arrangements.

In Fiscal Year 2007, separate cost-type contracts were awarded to Lockheed Martin Aeronautics Company and Pratt & Whitney to begin low rate initial production for F-35 air vehicles, propulsion systems, and sustainment for the fielded systems. Transition to fixed-price-type procurement contracts occurred with the fourth low rate lot. To provide logistics support for delivered aircraft, Performance-Based Logistics cost-type contracts will be awarded to Lockheed Martin Aeronautics Company and Pratt & Whitney.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 5	PE 0604800N / JNT Strike Fighter (JSF) - EMD	2261 / Joint Strike Fighter EMD

At the completion of Low Rate Initial Production, a Defense Acquisition Board review, and Milestone Decision Authority approval, the F-35 Program will enter Full Rate Production. Fixed-price procurement contracts will be awarded for F-35 air vehicles and propulsion systems for the U.S. Services and international participants. Multiyear procurement authority for the F-35 Air System will be requested for Full Rate Production. Concurrently, a fixed-price-type Performance Based Logistics contracts for sustainment will be requested to support multi-Service and multi-national requirements.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
1319 / 5				PE 0604800N / JNT Strike Fighter (JSF) - EMD					2261 / Joint Strike Fighter EMD						
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Primary Hardware Development - SDD	C/CPIF	Lockheed Martin : Ft. Worth, TX	32,378.580	94.464	Dec 2018	10.828	Dec 2019	6.234	Dec 2020	-		6.234	3.419	32,493.525	32,495.150
Primary Hardware Development - Incentive Fee	C/CPIF	Lockheed Martin : Ft. Worth, TX	1,745.043	9.303	Nov 2019	0.000		0.000		-		0.000	0.000	1,754.346	1,754.193
Prior Year No Longer Funded in FYDP	Various	Various : Various	12,211.151	0.000		0.000		0.000		-		0.000	0.000	12,211.151	-
Subtotal			46,334.774	103.767		10.828		6.234		-		6.234	3.419	46,459.022	N/A
Remarks															
Contract type prior to 2013 was CPAF.															
Cumulative Award Fee earned in prior years for Lockheed Martin is 97%.															
Cumulative Award Fee earned in prior years for Pratt and Whitney is 98%.															
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Development Support - Miscellaneous	Various	Various : Various	148.727	22.569	Nov 2018	0.000		0.000		-		0.000	0.000	171.296	-
Prior Year No Longer Funded in FYDP	Various	Various : Various	1,223.521	0.000		0.000		0.000		-		0.000	0.000	1,223.521	-
Subtotal			1,372.248	22.569		0.000		0.000		-		0.000	0.000	1,394.817	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 and Evaluation	Various	NAWC WD : China Lake, CA	43.257	0.000	Nov 2018	0.000		0.000		-		0.000	0.000	43.257	-
Developmental Test and Evaluation	Various	NAWC AD : Patuxent River, MD	811.512	0.181	Nov 2018	0.000		0.000		-		0.000	0.000	811.693	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD
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Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test and Evaluation	Various	Edwards AFB : Edwards AFB, CA	743.319	0.000	Nov 2018	0.000		0.000		-		0.000	0.000	743.319	-
Operational Test and Evaluation Support	Various	OT-Variou : Variou	16.126	64.432	Nov 2018	0.000		0.000		-		0.000	0.000	80.558	-
Prior Year No Longer Funded in FYDP	Various	Variou : Variou	741.413	0.000		0.000		0.000		-		0.000	0.000	741.413	-
Subtotal			2,355.627	64.613		0.000		0.000		-		0.000	0.000	2,420.240	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	Various	Variou : Variou	27.261	0.511	Dec 2018	0.000		0.000		-		0.000	0.000	27.772	-
Prior Year No Longer Funded in FYDP	Various	Variou : Variou	886.338	0.000		0.000		0.000		-		0.000	0.000	886.338	-
Subtotal			913.599	0.511		0.000		0.000		-		0.000	0.000	914.110	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Subtotals	50,976.248	191.460	10.828	6.234	-	6.234	3.419	51,188.189	N/A
Joint Strike Fighter 0604800F	-	67.999	7.628	5.423	-	5.423			-
Joint Strike Fighter 0604800M	-	64.692	1.710	0.561	-	0.561			-
Project Cost Totals	50,976.248	58.769	1.490	0.250	-	0.250	3.419	51,188.189	-

Remarks
Subtotals and totals may not add due to rounding.

NOTE 1: Prior Years reflects \$22,252.708M USAF/\$19,901.107M USN/\$3,808.970M USMC /\$5,013.470M International/Total \$50,976.248M
 FY 2019 reflects \$ 67.999M USAF/\$ 58.769M USN/\$ 64.692M USMC/\$ 0.000M International/Total \$191.46M
 FY 2020 reflects \$ 7.628M USAF/\$ 1.490M USN/\$ 1.710M USMC/\$ 0.000M International/Total \$10.828M
 FY 2021 reflects \$ 5.423M USAF/\$ 0.250M USN/\$ 0.561M USMC/\$ 0.000M International/Total \$ 6.234M

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Appropriation/Budget Activity			R-1 Program Element (Number/Name)			Project (Number/Name)				
1319 / 5			PE 0604800N / JNT Strike Fighter (JSF) - EMD			2261 / Joint Strike Fighter EMD				
	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
JSF EMD Includes: USAF PE 0604800F BPAC 653831 USN PE 0604800N Project Unit 2261 USMC PE 0604800M Project Unit 2262 D&S Includes: USAF PE 0604800F BPAC 653832 USN PE 0604800N Project Unit 3352 USMC PE 0604800M Project Unit 3350										

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy **Date:** February 2020

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JSF Variants - CV, STOVL & CTOL	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones	F-35C IOC ▲																											
Test & Evaluation	Initial Operational Test and Evaluation (IOT&E)																											
Defense Acquisition Reviews	IPR ■				IPR ■				IPR ■				IPR ■															
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft)	LOT 13 (CTOL 56, CV 15, STOVL 22)				LOT 14 (CTOL 62, CV 20, STOVL 16)				LOT 15 (CTOL 48, CV 21, STOVL 10)				LOT 16 (CTOL 48, CV 22, STOVL 17)				LOT 17 (CTOL 48, CV 23, STOVL 20)				LOT 18 (CTOL 48, CV 26, STOVL 20)				LOT 19 (CTOL 48, CV 28, STOVL 20)			

2021PB - 0604800N - 2261

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
JSF Variants - CV, STOVL & CTOL				
Acquisition Milestones: F-35C Initial Operational Capability	2	2019	2	2019
Test & Evaluation: Test and Evaluation: Initial Operational Test and Evaluation (IOT&E)	1	2019	4	2020
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-18	1	2019	1	2019
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-19	1	2020	1	2020
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-20	1	2021	1	2021
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-21	1	2022	1	2022
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 13 Full Funding / Production / Delivery	2	2019	1	2020
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 14 Full Funding / Production / Delivery	2	2020	1	2021
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 15 Full Funding / Production / Delivery	2	2021	1	2022
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 16 Full Funding / Production / Delivery	2	2022	4	2023
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 17 Full Funding / Production / Delivery	2	2023	4	2024
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 18 Full Funding / Production / Delivery	2	2024	4	2025

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 19 Full Funding / Production / Delivery	2	2025	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy										Date: February 2020		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD				Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
3352: F-35C Sustainment/Capability Enhancements	505.902	4.766	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	510.668
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Total cost including United States Navy (USN), United States Marine Corps (USMC), United States Air Force (USAF) and International Partner contributions funding is: FY19 \$4.766M, FY20 \$0.000M, and FY21 \$0.000M.

R-2A table shown above reflect service funding only.

R-2A (section B)/R-3 displays total combined program (i.e. not Service-specific), including International partners.

D&S Includes:

USAF PE 64800F BPAC 653832

USN PE 0604800N Project Unit 3352

USMC PE 0604800M Project Unit 3350

A. Mission Description and Budget Item Justification

Funds enhancements to the deployability and suitability of the air system such as low observable (LO) maintenance enhancements, security architecture updates, redesign of obsolete items, and integrated training simulators. These enhancements will provide vital on-demand support to the war-fighter within a deployed environment and are not funded via the existing System Development and Demonstration (SDD) program or tied to Block 4 Operational Flight Program development. Funding will result in achieving targeted suitability, maintainability, and affordability returns employing the F-35 in deployed or austere locations.

-Funding at the accomplishment/planned program level is reported as the total of all services as these activities support all aircraft variants. By agreement, USN and USMC funding shares are approximately equal and when combined are equal to the USAF share.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Sustainment and Capability Enhancements	4.766	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Apply disciplined systems engineering, refinement of requirements, develop and acquire					

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
suitability and maintainability of the air system such as decentralized maintenance capabilities, LO maintenance enhancements, security architecture updates, redesign of obsolete items and integrated training simulators.					
FY 2020 Plans: N/A					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	4.766	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• RDT&E/0604800F: F-35A Joint Strike Fighter SDD	67.999	7.628	5.434	-	5.434	0.000	0.000	0.000	0.000	0.000	22,333.769
• APAF/0207142F BP10: F-35A USAF CTOL	4,253.696	4,209.813	4,862.684	-	4,862.684	4,796.042	0.000	0.000	0.000	148,685.767	202,884.710
• RDT&E/0604800M/2262: F-35B JT Strike Fighter (JSF) - EMD	64.692	1.710	0.561	-	0.561	0.584	0.596	0.608	0.621	0.000	51,025.620
• APN/0605B: F-35B Joint Strike Fighter STOVL Spares	92.198	160.150	140.989	-	140.989	143.809	0.000	0.000	0.000	Continuing	Continuing
• APN/0605C: F-35 Joint Strike Fighter CV Spares	44.971	52.858	303.608	-	303.608	309.680	0.000	0.000	0.000	Continuing	Continuing
• MILCON 0207142F: USAF MILCON Operations	175.150	154.400	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,602.550
• APAF/0207142F BP11: USAF Modification Funding	230.448	279.814	259.978	-	259.978	301.899	0.000	0.000	0.000	0.000	1,665.794
• FOD/0207142F: USAF Follow-on-Development (FoD)	396.821	504.971	418.988	-	418.988	343.147	283.292	0.000	0.000	Continuing	Continuing
• PE/LI0207142F/USAF B: USAF Joint Strike Fighter Initial Spares	319.151	416.722	399.361	-	399.361	394.654	0.000	0.000	0.000	4,175.007	7,849.413

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• USAF/OPAF 0207142F: USAF OPAF	3.310	2.993	2.463	-	2.463	2.507	0.000	0.000	0.000	Continuing	Continuing
• APN/0592: F-35B STOVL Serious	41.218	65.585	153.588	-	153.588	183.018	278.209	278.216	226.263	173.744	1,986.706
• APN/0593: F-35C CV Serious	25.483	15.358	105.452	-	105.452	98.847	178.094	172.164	177.534	Continuing	Continuing
• PAF/0207142F BP10: F-35A JSF CTOL Advance Procurement	405.200	1,003.600	965.300	-	965.300	414.700	0.000	0.000	0.000	20,154.954	26,885.296
• DCA/0207142F 676011: Dual Capable Aircraft (DCA)	75.321	71.339	106.136	-	106.136	45.260	11.622	11.830	12.047	Continuing	Continuing
• APN/0147: F-35C Joint Strike Fighter CV	2,241.641	2,321.012	2,462.310	-	2,462.310	2,500.192	2,975.220	2,985.069	3,136.722	18,448.497	54,263.059
• APN/0152C: F-35B Joint Strike Fighter STOVL AP	114.246	291.804	303.035	-	303.035	221.554	231.317	234.344	239.031	1,855.779	5,427.784
• DoN MILCON: DoN JSF MILCON	121.990	119.800	0.000	-	0.000	0.000	0.000	0.000	0.000	642.400	1,406.074
• International 2: International Production/Reprogramming Lab	160.507	139.747	103.379	-	103.379	109.226	122.140	123.888	0.000	Continuing	Continuing
• OPN/4268: Logistics Information System (ALIS)	37.874	62.889	58.873	-	58.873	72.071	91.704	92.946	89.708	Continuing	Continuing
• MC/0207597F: USAF MILCON Training	11.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	166.750
• International 3: International R&D FoM/D&S	209.763	258.004	359.626	-	359.626	258.969	211.292	208.053	177.542	Continuing	Continuing
• OPN 902010 S8JC: Aviation Support Equipment (ALIS).	2.321	0.139	1.977	-	1.977	0.000	0.000	0.000	0.000	0.000	11.291
• USAF O&M: USAF O&M	731.134	909.930	985.790	-	985.790	1,089.394	0.000	0.000	0.000	Continuing	Continuing
• APN/0147C: F-35C Joint Strike Fighter CV AP	140.010	339.053	330.386	-	330.386	261.923	246.494	265.615	248.487	539.882	4,168.045
• 0604840N F-35C C2D2: F-35C 3411	215.366	383.741	414.385	-	414.385	284.926	199.097	215.081	199.917	0.000	1,912.513
• 0604840M F-35B C2D2: F-35B 3410	222.644	422.881	381.060	-	381.060	323.328	294.111	283.635	245.452	0.000	2,173.111
• APN/0152: F-35B Joint Strike Fighter STOVL	2,927.101	2,102.833	1,358.947	-	1,358.947	2,182.725	2,546.883	2,710.704	2,779.002	19,651.417	50,085.487

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

Implement Joint Strike Fighter Joint Executive Steering Board/Configuration Steering Board approved enhancements through existing contracts using the engineering change proposal process. When appropriate, new cost type contracts may be established.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)							
1319 / 5				PE 0604800N / JNT Strike Fighter (JSF) - EMD					3352 / F-35C Sustainment/Capability Enhancements							
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Primary Hardware Development - 3002 SDD	C/CPPF	Lockheed Martin : Fort Worth, TX	112.797	4.766	Mar 2019	0.000		0.000		-		0.000	0.000	117.563	117.754	
Prior Year No Longer Funded in FYDP	Various	Various : Various	335.414	0.000		0.000		0.000		-		0.000	0.000	335.414	-	
Subtotal			448.211	4.766		0.000		0.000		-		0.000	0.000	452.977	N/A	
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Prior Year No Longer Funded in FYDP	Various	Various : Various	49.279	0.000		0.000		0.000		-		0.000	0.000	49.279	-	
Subtotal			49.279	0.000		0.000		0.000		-		0.000	0.000	49.279	N/A	
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Prior Year No Longer Funded in FYDP	Various	Various : Various	3.486	0.000		0.000		0.000		-		0.000	0.000	3.486	-	
Subtotal			3.486	0.000		0.000		0.000		-		0.000	0.000	3.486	N/A	
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	
Prior Year No Longer Funded in FYDP	Various	Various : Various	4.926	0.000		0.000		0.000		-		0.000	0.000	4.926	-	
Subtotal			4.926	0.000		0.000		0.000		-		0.000	0.000	4.926	N/A	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy							Date: February 2020				
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD				Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements				
	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	505.902	4.766	0.000	0.000	-	0.000	0.000	510.668	N/A		

Remarks

NOTE: Prior Years reflect \$219.587M USAF/\$97.600M USN/\$93.135M USMC/\$95.550M International/Total \$505.902M
 FY 2019 reflects \$ 0.000M USAF/\$ 4.766M USN/\$ 0.000M USMC/\$ 0.000M International/Total \$ 4.766M
 FY 2020 reflects \$ 0.000M USAF/\$ 0.000M USN/\$ 0.000M USMC/\$ 0.000M International/Total \$ 0.000M
 FY 2021 reflects \$ 0.000M USAF/\$ 0.000M USN/\$ 0.000M USMC/\$ 0.000M International/Total \$ 0.000M

R-2A (section B)/R-3 displays total combined program (i.e. not Service-specific), including International partners.

JSF EMD Includes:

- USAF PE 0604800F BPAC 653831
- USN PE 0604800N Project Unit 2261
- USMC PE 0604800M Project Unit 2262

D&S Includes:

- USAF PE 0604800F BPAC 653832
- USN PE 0604800N Project Unit 3352
- USMC PE 0604800M Project Unit 3350

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JNT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3352				
D&S: Security Architecture	1	2019	4	2019
D&S: Offboard Misson Support (OMS) Redesign	1	2019	4	2019
D&S: Distributed Mission Training/Distributed Mission Operations (DMT/DMO)	1	2019	4	2019