Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy											Date: February 2020	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604282N *I (U)NEXT GENERATION JAMMER (NGJ) INC II*							
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	80.355	91.216	90.922	170.039	-	170.039	224.359	243.027	244.466	249.367	1,668.498	3,062.249
3380: *Next Generation Jammer Inc II*	80.355	91.216	90.922	170.039	-	170.039	224.359	243.027	244.466	249.367	1,668.498	3,062.249

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): P520

A. Mission Description and Budget Item Justification

The Next Generation Jammer (NGJ) is the next step in the evolution of Airborne Electronic Attack (AEA) and is a critical capability necessary to address current, emerging, and evolving Electronic Warfare gaps, ensure kill chain wholeness against growing threat capabilities and capacity, keep pace with enemy threat weapon systems' advancements, and support the continuous expansion of the AEA mission areas that exceed the capability of currently fielded systems. NGJ will utilize enhanced techniques and tactics to deliver significantly improved radar and communications jamming effectiveness as well as other classified capabilities. Utilizing an Open Systems Architecture that supports software and hardware updates to rapidly counter emergent and evolving threats, NGJ is a key enabler and force multiplier for operations across the spectrum of missions defined in the Defense Strategic Guidance, including strike warfare, projecting power despite highly contested environments, and counterinsurgency/irregular warfare. NGJ will also address the shortfalls in scalability, flexibility, supportability, interoperability, availability, and capability of the existing AN/ALQ-99 Tactical Jamming System.

This Program Element (PE 0604282N) supports the Next Generation Jammer - Low Band (NGJ-LB) (formerly known as Next Generation Jammer Increment 2) program. NGJ-LB will address AEA capability and sufficiency gaps against enemy threats operating in the lower frequency bands of the electromagnetic spectrum. NGJ-LB will provide the ability to effectively engage enemy threats from increased stand-off distances, employ increased capacity (number of jamming assignments) against enemy targets, and support agile employment by operators. The NGJ-LB system will be integrated on the EA-18G tactical aircraft and will augment and then replace the legacy AN/ALQ-99 Tactical Jamming System Low-Band pods.

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy					Date: February 2020
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*			R-1 Program Element (Number/Name) PE 0604282N *I (U)NEXT GENERATION JAMMER (NGJ) INC II*		
B. Program Change Summary ($ in Millions)	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**
Previous President's Budget	93.482	111.068	214.554	-	214.554
Current President's Budget	91.216	90.922	170.039	-	170.039
Total Adjustments	-2.266	-20.146	-44.515	-	-44.515
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-20.146			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.266	0.000			
• Program Adjustments	0.000	0.000	-44.997	-	-44.997
• Rate/Misc Adjustments	0.000	0.000	0.482	-	0.482

Change Summary Explanation

Technical: Not applicable.

Schedule: Addition of Rapid Prototype or Engineering and Manufacturing Development (EMD) Testing begins in 3rd Qtr FY 2021 and ends in 4th Qtr FY 2025.

The FY 2021 funding request was reduced by $5.404M to account for the availability of prior year execution balances.

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 0604282N / *(U)NEXT GENERATION JAMMER (NGJ) INC II*	Project (Number/Name) 3380 / *Next Generation Jammer Inc II*	

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
3380: *Next Generation Jammer Inc II*	80.355	91.216	90.922	170.039	-	170.039	224.359	243.027	244.466	249.367	1,668.498	3,062.249
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: P520

A. Mission Description and Budget Item Justification

This Program Element (PE 0604282N) supports the Next Generation Jammer - Low Band (NGJ-LB) program. NGJ-LB will address Airborne Electronic Attack (AEA) capability and sufficiency gaps against enemy threats operating in the lower frequency bands of the electromagnetic spectrum. NGJ-LB will provide the ability to effectively engage enemy threats from increased stand-off distances, employ increased capacity (number of jamming assignments) against enemy targets, and support agile employment by operators. The NGJ-LB system will be integrated on the EA-18G tactical aircraft and will augment and then replace the aging AN/ALQ-99 Tactical Jamming System Low-Band pods.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Next Generation Jammer Low Band Primary Hardware Development	56.150	38.641	100.625	0.000	100.625
Articles:	-	-	-	-	-
FY 2020 Plans: Complete execution of the two Demonstration of Existing Technologies (DET) contracts and award EMD/Rapid Prototype contract for follow-on NJG-LB technology development efforts based on technical assessment of data analyzed during the DET phase. Further development of specification and other products to support design, integration, test, and assessment efforts.					
FY 2021 Base Plans: Continue execution of NGJ-LB contracts focusing on pod (hardware and software) design and development. Concentrating on requirements for initial flight clearance, mission systems and aeromechanical testing. Support initial aircraft modifications and test events. Develop peculiar support equipment for the NGJ-LB pod. Provide data for training materials in cooperation with the EA-18G aircraft Original Equipment Manufacturer (OEM) for EA-18G operators and maintainers.					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement:					

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 0604282N / *(U)NEXT GENERATION JAMMER (NGJ) INC II*	**Project (Number/Name)** 3380 / *Next Generation Jammer Inc II*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Increase from FY 2020 to FY 2021 due to the first full year of an EMD or Rapid Prototype contract to deliver two Mission Systems Prototype Test pods, two aeromechanical test pods, two Technique Development Stations, and develop and assess required data to support an Interim Flight Clearance.					
Title: Next Generation Jammer Low Band Systems Engineering	30.737	36.551	35.366	0.000	35.366
Articles:	-	-	-	-	-
FY 2020 Plans: Conduct source selection for an EMD contract or a Rapid Prototype contract pursuant to 10 U.S.C. 2302 Section 804 and associated Navy guidance for Middle Tier Acquisition programs. Refinement of system specifications to support System Requirements Review/System Functional Review (SRR-2/SFR-2) and system design reviews. Investigate, design, develop, and evaluate related advanced hardware and software technologies.					
FY 2021 Base Plans: Perform System Engineering efforts in support of continued NGJ-LB development to include system qualification activities, an initial flight clearance, technique and initial system security engineering development activities. Provide Systems Engineering support to integration and test activities. Develop and release Contractor Logistics Support/Repair of Repairables (CLS/ROR) Request for Proposal (RFP) for prototype pod support. Conduct Failure Mode Effects and Critical Analysis (FMECA), Level of Repair Analysis (LORA) and Reliability Centered Maintenance (RCM) analysis to support product support documentation development. Support operator and maintainer training product development and development of pod specific support equipment.					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: Funding decreases from FY 2020 to FY 2021 due to lab pod emulator related engineering efforts completing in FY 2020.					
Title: Next Generation Jammer Low Band Support & Management Services	3.788	2.713	2.767	0.000	2.767
Articles:	-	-	-	-	-
FY 2020 Plans: Provide Support and Management Services associated with the NGJ-LB Program.					
FY 2021 Base Plans:					

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 0604282N / *(U)NEXT GENERATION JAMMER (NGJ) INC II*	**Project (Number/Name)** 3380 / *Next Generation Jammer Inc II*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Provide Support and Management Services associated with the NGJ-LB Program. ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** N/A					
Title: Next Generation Jammer Low Band Integration ***Articles:*** ***FY 2020 Plans:*** Utilize data and analysis products for support of Computational Fluid Dynamics (CFD) analysis, wind tunnel test and integration software (H Build) development for interface into the EA-18G. Refinement of the Statement of Requirements (SOR) for aircraft System Configuration Set (SCS) software build including the aircraft integration study of initial Non-Recurring Engineering (NRE). ***FY 2021 Base Plans:*** Continue software (H build) development and begin the aircraft integration efforts, including the aircraft integration statement of work, contract award and the non-recurring engineering (NRE) for the development of the EA-18G A-kits. Conduct engineering design Systems Integration Lab (SIL) testing and associated reports and documentation. Begin the development of the training materials in cooperation with the NGJ-LB pod prime contractor for EA-18G operators and maintainers. ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding increases in FY 2021 due to software coding for the EA-18G SCS with NGJ-LB specific required changes, NRE of EA-18G A-kits and procurement of hardware for installation into test aircraft.	0.000 -	9.345 -	28.111 -	0.000 -	28.111 -
Title: Next Generation Jammer Low Band Test & Evaluation ***Articles:*** ***FY 2020 Plans:***	0.541 -	3.672 -	3.170 -	0.000 -	3.170 -

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 0604282N / *(U)NEXT GENERATION JAMMER (NGJ) INC II*	**Project (Number/Name)** 3380 / *Next Generation Jammer Inc II*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Complete DET Assessment. Development of an Assessment Plan or Test & Evaluation Master Plan to support the technical reviews and define the aeromechanical mission system and the integration flight test program. Continue resource and infrastructure improvements to support DET and follow-on test activities. ***FY 2021 Base Plans:*** Complete initial aeromechanical testing (Wind Tunnel, Power and Ground Noise and Vibration) and begin system testing to include instrumentation of an aircraft for flying qualities and stability and control testing. Plan captive carriage flight test for weapons separation testing. Instrument two EA-18G aircraft to support mission systems ground and flight test. Finalize NGJ-LB Mission Systems Test Planning for installed system performance characterization that includes System Performance Specification verification, EA-18G AEA systems integration, regression interoperability, software integration and functionality, Electromagnetic Environmental Effects, assignment control, frequency and spatial coverage, beam capacity, beam switching, beam stabilization, Effective Isotropic Radiated Power, antenna patterns, receive functionality, technique generation and management, Crew Vehicle Interface, aircrew workload, safety, mission planning, cybersecurity, reliability, maintainability, ground support equipment, and environmental qualifications. Complete test infrastructure improvements necessary to validate full NGJ-LB capabilities. ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding decrease in FY 2021 due to completion of DET testing.					
Accomplishments/Planned Programs Subtotals	91.216	90.922	170.039	0.000	170.039

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

NGJ-LB program is designated a pre-Major Defense Acquisition Program (pre-MDAP), MDAP program number P520. The activity will focus on technology demonstrations and supporting analysis to inform the acquisition strategy, design engineering trades (DET), and the identification of requirements and available technologies for the development program. Execution of the DET activities will validate existing technology maturity for low band applications on the EA-18G and inform the decision to pursue an EMD program or a Rapid Prototype effort pursuant to 10 U.S.C. 2302 Section 804 and associated Navy guidance for Middle Tier Acquisition programs.

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 0604282N / *(U)NEXT GENERATION JAMMER (NGJ) INC II*	Project (Number/Name) 3380 / *Next Generation Jammer Inc II*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary H/W Dev - Aircraft Specification Refinement	SS/CPIF	Boeing : St. Louis, MO	1.262	3.446	Feb 2019	9.336	Feb 2020	0.000		-		0.000	0.000	14.044	14.044
Primary H/W Dev - Technology Demonstrators 1	C/CPFF	L3 : Salt Lake City, UT	14.704	25.687	Nov 2018	9.054	Nov 2019	0.000		-		0.000	0.000	49.445	49.445
Primary H/W Dev - Technology Demonstrators 2	C/CPFF	NGC : Bethpage, NY	14.704	27.017	Nov 2018	6.977	Feb 2020	0.000		-		0.000	0.000	48.698	48.698
Primary H/W Dev - EMD or Rapid Prototype	C/CPFF	TBD : TBD	0.000	0.000		13.275	Sep 2020	100.625	Nov 2020	-		100.625	1,434.475	1,548.375	1,548.375
Aircraft Integration - Study	WR	NAWCWD : China Lake, CA	0.000	0.000		1.165	Dec 2019	2.403	Dec 2020	-		2.403	53.978	57.546	-
Aircraft Integration	SS/CPIF	Boeing : St. Louis, MO	0.000	0.000		0.000		9.788	Nov 2020	-		9.788	130.580	140.368	140.368
Software Integration	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		3.389	Dec 2020	-		3.389	86.804	90.193	-
Software Integration	SS/CPIF	Boeing : St. Louis, MO	0.000	0.000		1.080	Mar 2020	5.289	Nov 2020	-		5.289	99.811	106.180	106.180
Software Integration	SS/CPIF	NGC : Bethpage, NY	0.000	0.000		7.100	Jan 2020	7.242	Nov 2020	-		7.242	63.401	77.743	77.743
Software Integration	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		0.000		-		0.000	4.875	4.875	-
Systems Engineering - Trainer	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	6.351	6.351	-
Systems Engineering	TBD	NSMA : Arlington, VA	1.145	7.551	Sep 2019	6.077	Sep 2020	6.198	Jan 2021	-		6.198	44.044	65.015	65.015
Systems Engineering	WR	NAWCAD : Patuxent River, MD	18.164	14.978	Dec 2018	14.837	Dec 2019	15.134	Dec 2020	-		15.134	132.492	195.605	-
Systems Engineering	WR	NAWCWD : Point Mugu, CA	3.740	3.717	Dec 2018	8.489	Dec 2019	8.659	Dec 2020	-		8.659	75.804	100.409	-
Systems Engineering	WR	NSWC Crane : Crane, IN	2.719	1.568	Dec 2018	3.480	Dec 2019	1.578	Dec 2020	-		1.578	13.814	23.159	-
Systems Engineering	SS/CPFF	JHU : Laurel, MD	6.952	2.866	May 2019	3.600	Feb 2020	3.672	Dec 2020	-		3.672	32.451	49.541	49.541

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 0604282N / *(U)NEXT GENERATION JAMMER (NGJ) INC II*	Project (Number/Name) 3380 / *Next Generation Jammer Inc II*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	Various	Various : Various	0.090	0.057	Jun 2019	0.068	Jan 2020	0.125	Dec 2020	-		0.125	1.092	1.432	-
Prior Year Prod Dev no longer funded in FYDP	Various	Various : Various	14.311	0.000		0.000		0.000		-		0.000	0.000	14.311	-
		Subtotal	77.791	86.887		84.538		164.102		-		164.102	2,179.972	2,593.290	N/A

Remarks

1) Funding increases from FY 2020 to FY 2021 as a result of funding 12 months of effort for EMD or Rapid Prototype in FY 2021.
2) FY 2020 NSWC Crane Systems Engineering includes lab pod emulator related engineering efforts.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Eng & Tech Srvc (Non FFRDC)	Various	Various : Various	2.334	3.762	Dec 2018	2.598	Dec 2019	2.650	Dec 2020	-		2.650	23.201	34.545	34.545
		Subtotal	2.334	3.762		2.598		2.650		-		2.650	23.201	34.545	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development T&E - TEST DT	WR	NAWCAD : Patuxent River, MD	0.000	0.409	Nov 2018	2.111	Dec 2019	1.652	Nov 2020	-		1.652	290.740	294.912	-
Development T&E VX-23/31 - Engineers	TBD	Boeing : St. Louis, MO	0.000	0.000		0.000		0.000		-		0.000	60.931	60.931	60.931
Development T&E VX-23/31 - Maintenance	TBD	Boeing : St. Louis, MO	0.000	0.000		0.000		0.000		-		0.000	37.413	37.413	37.413
Development T&E - Wind Tunnel	TBD	TBD : TBD	0.000	0.000		1.445	Jan 2020	1.300	Nov 2020	-		1.300	10.589	13.334	-
Development T&E - COTF	SS/FFP	FSC : San Diego, CA	0.216	0.132	Nov 2018	0.115	Jan 2020	0.218	Nov 2020	-		0.218	2.181	2.862	2.862

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 0604282N / *(U)NEXT GENERATION JAMMER (NGJ) INC II*	**Project (Number/Name)** 3380 / *Next Generation Jammer Inc II*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational T&E - TEST OT	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	22.974	22.974	-
		Subtotal	0.216	0.541		3.671		3.170		-		3.170	424.828	432.426	N/A

Remarks

Funding decreases from FY 2020 to FY 2021 due to end of DET testing.

Management Services ($ in Millions)

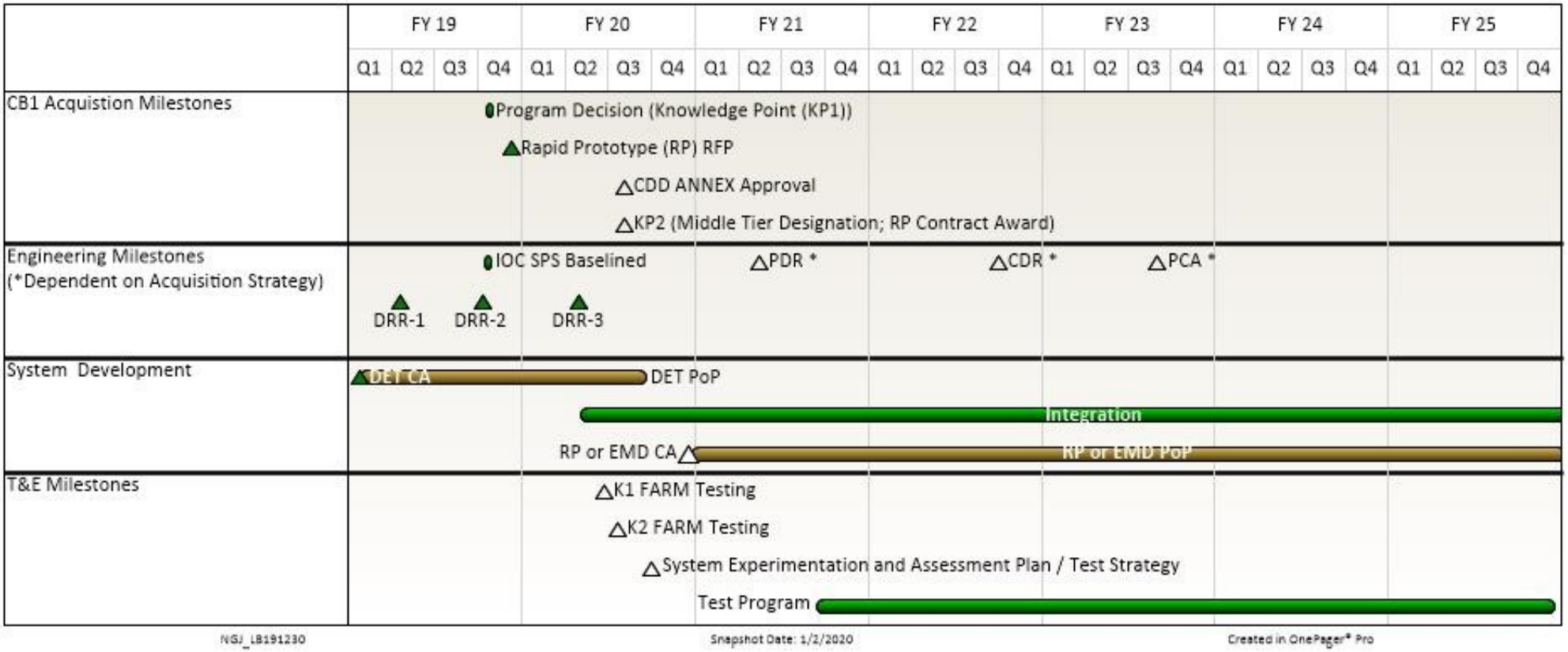
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	Various : Various	0.014	0.026	Oct 2018	0.115	Oct 2019	0.117	Oct 2020	-		0.117	1.716	1.988	-
		Subtotal	0.014	0.026		0.115		0.117		-		0.117	1.716	1.988	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
Project Cost Totals	80.355	91.216		90.922		170.039		-		170.039	2,629.717	3,062.249	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604282N / *(U)NEXT GENERATION JAMMER (NGJ) INC II*	**Project (Number/Name)** 3380 / *Next Generation Jammer Inc II*

NGJ-LB



* Dependent on acquisition strategy

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 0604282N / *(U)NEXT GENERATION JAMMER (NGJ) INC II*	**Project (Number/Name)** 3380 / *Next Generation Jammer Inc II*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Next Generation Jammer Low Band (Increment II)				
Acquistion Milestones: Program Decision	4	2019	4	2019
Systems Development: Demonstration of Existing Technologies (DET)	1	2019	3	2020
Systems Development: Rapid Prototype or EMD	4	2020	4	2025
Systems Development: Integration	2	2020	4	2025
Test & Evaluation: DET Assessment	4	2019	2	2020
Test & Evaluation: Rapid Prototype or EMD Testing	3	2021	4	2025
Engineering Milestones: Preliminary Design Review	2	2021	2	2021
Engineering Milestones: Critical Design Review	3	2022	3	2022
Engineering Milestones: Physical Configuration Audit	3	2023	3	2023
Contract Awards: EMD or Rapid Prototype	4	2020	4	2020