Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Office of the Secretary Of Defense	Date: February 2020
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*

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	146.984	96.196	72.351	102.023	-	102.023	104.452	106.313	109.050	111.269	Continuing	Continuing
638: *Rapid Prototyping Program*	146.984	96.196	72.351	102.023	-	102.023	104.452	106.313	109.050	111.269	Continuing	Continuing

A. Mission Description and Budget Item Justification

In partnership with the Services and Defense Agencies, the Rapid Prototyping Program (RPP) encourages joint Service development through prototyping efforts that reduce risk, establish affordable and realistic requirements, and support timely development of fieldable capabilities demonstrated in an operational environment. RPP addresses priorities identified by the National Defense Strategy, the Department of Defense (DoD) modernization priorities, the Chairman's Capability Gap Assessment, and Service or Agency identified capability gaps and needs. Service and Agency senior executives participate in the project selection process to reduce duplication, synchronize prototyping efforts, and target projects with the widest benefit to the Joint Service. Overarching program goals include enhanced warfighter lethality, modernization of cross-cutting technology areas, and delivering capabilities more quickly than traditional acquisition.

RPP develops prototypes that reduce technical and integration risk to define and improve requirements for programs of record. RPP project selection aligns to DoD modernization priorities including autonomous systems; hypersonics; fully networked command, control, and communications; electronic warfare; sensors for intelligence, surveillance, and reconnaissance (ISR); and fire control. RPP rapidly develops and fields cross-cutting, prototype capabilities that demonstrate in an operational environment to inform the DoD and Service leadership. Individual projects generally receive one year of funding, typically at a cost of less than $10.000 million.

B. Program Change Summary ($ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	99.107	100.957	102.964	-	102.964
Current President's Budget	96.196	72.351	102.023	-	102.023
Total Adjustments	-2.911	-28.606	-0.941	-	-0.941
• Congressional General Reductions	-	-28.606			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.894	-			
• Other Program Adjustments and DoD Priorities	-0.017	-	-0.841	-	-0.841
• Economic Assumption	-	-	-0.100	-	-0.100

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Office of the Secretary Of Defense	Date: February 2020
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*

Change Summary Explanation

The Fiscal Year 2020 reduction of $28.606M is directed by Congress to reduce duplication of efforts. The Fiscal Year 2021 net reduction of $0.941M is to support other DoD priorities and economic assumptions.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Office of the Secretary Of Defense			Date: February 2020
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604331D8Z / *Rapid Prototyping Program*	Project (Number/Name) 638 / *Rapid Prototyping Program*	

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
638: *Rapid Prototyping Program*	146.984	96.196	72.351	102.023	-	102.023	104.452	106.313	109.050	111.269	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Rapid Prototyping Program (RPP) develops prototypes to deliver capabilities, reduce risk, and inform requirements. RPP facilitates and accelerates joint, cross-cutting prototyping efforts for the Services and Defense Agencies. This program has the agility to select, fund, and implement projects in the year of execution as new opportunities or threats emerge. Planned funding supports the National Defense Strategy, the DoD modernization priorities, and Service and Agency needs, enabling rapid response to emergent and time-sensitive threats.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: The Perfect Storm ***Description:*** This prototyping project supported the fully networked command, control, and communications capability thrust area. The Perfect Storm developed an affordable, scalable, forward deployed electronic warfare asset to support missions not currently attainable by other means due to anti-access/area denial and size, weight, and power constraints. The prototype system consists of a multi-kernel, multi-channel application specific integrated circuit, radio frequency transceiver hardware, and software development kit. Prototypes were developed and tested using a small unmanned autonomous system platform. This effort leveraged partners from the U.S. Army Communications-Electronics Research Development and Engineering Center, Intelligence and Information Warfare Directorate. Capabilities transitioned to the U.S. Army and U.S. Navy. Additional details are classified.	5.957	-	-
Title: Seeker Technology for Hypervelocity Projectiles ***Description:*** This prototyping project addressed gaps in hypersonics through the development of innovative seeker technologies suitable for hypervelocity projectiles to enhance combat lethality in complex environments. The prototype is a gun-hardened, low-cost seeker technology that significantly improves accuracy and enables critical multi-mission capability. Through this effort, multiple seeker technologies for small agile interceptors were integrated and tested using government developed and built projectiles. The prototype built on work completed in the Office of Naval Research and the Strategic Capabilities Office. Using FY 2019 funding, the project completed development and performed a final flight test prior to the technology transitioning to the U.S. Navy.	4.400	-	-
Title: High-Volume Long-Range Precision Strike ***Description:*** This effort developed and demonstrated advanced low-cost, long-range, high-volume precision strike capabilities for increased lethality that can be deployed from a variety of platforms with minimal footprint. In FY 2019, the project completed the design of the system level architecture, development and integration of components, and conducted a demonstration. The	14.044	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
prototype system transitioned to the U.S. Navy Medium Unmanned Surface Vessel (USV) and Large USV programs of record. Additional details are classified.			
Title: TALON HAYABUSA ***Description:*** This project accelerated a resilient, fully networked, command and control capability that operates outside of traditional radio frequency spectrum. It focused on improvements to automated link establishment and link recovery algorithms, and hardware updates to provide a resilient "wireless fiber" transport layer to additional platforms and missions. Using FY 2019 funding, the project upgraded the hardware and software, integrated components into a fieldable prototype, and conducted an extended field evaluation with operational users. This effort informed a U.S. Marine Corps program of record to augment wideband terrestrial radios with the new capability thereby providing access to non-traditional spectrum. Additional details are classified.	11.819	-	-
Title: Next Generation Information Awareness ***Description:*** This autonomy project developed and integrated standoff biometrics, technical sensors, advanced data architecture, and analytics to enable identification in near-peer, sensitive, less permissive environments. The prototype system consists of electro-optical and electro-magnetic analytic sensors, remote and autonomous sensor emplacement and control systems, automated data analytics platform, and a communications architecture. Using FY 2019 funding, the project completed the system development, sensor integration, and final demonstration. The prototype systems transitioned to a U.S. Special Operations Command program of record. Additional details are classified.	9.999	-	-
Title: Real-Time Artificial Intelligence/Machine Learning (AI/ML) on Platforms; Embedded High Performance Computing at the Edge ***Description:*** This project developed and demonstrated an advanced, size, weight and power constrained, embedded AI/ML computing capability for integration and demonstration on an operationally relevant platform. The prototype consists of an optimized Agile Condor pod that delivers AI/ML capabilities at the sensor thereby providing real-time information to users on the ground. Using FY 2019 funding, the project completed system development, integration, and testing of the system on an MQ-9 unmanned aerial vehicle platform with on-board sensors. This integration effort provided the system with the flight certification required for future transition efforts onto operational MQ-9 platforms. The Agile Condor systems transitioned to the U.S. Air Force.	6.750	-	-
Title: RED CYCLOPS ***Description:*** This project leveraged autonomy and artificial intelligence to develop and demonstrate a greatly reduced size, weight, and power imaging capability that is compatible with various platforms across the DoD. Development efforts focused on the system design, modeling, prototyping, and testing of various high-risk design aspects. Project work included design of an	7.911	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
advanced autonomous sensor with artificial intelligence edge processing capabilities for situation monitoring. RED CYCLOPS was integrated into a field deployable package that uses an infrared imaging sensor for observation of subjects at long stand-off distances. To accommodate this sensor, the effort implements an optical observation system design, along with a customized pod to enable integration with various ruggedized platforms. In FY 2019, the project completed the development and build efforts leading to a field test. Following the successful test, RED CYCLOPS transitioned to a program of record. Additional details are classified.			
Title: Assisted Target Recognition for Intelligence, Surveillance, and Reconnaissance ***Description:*** This project developed an on-board assisted target recognition capability for real-time critical threat identification and an open architecture processor for sensor cross-cueing and data collaboration. The prototype system consists of a common open architecture processor system with assisted target recognition algorithms of multiple sensor modalities (i.e., synthetic aperture radar, electro-optical/infrared, and multi-spectral imaging). Using FY 2019 funding, the project completed the software development, sensor integration, and flight demonstration. The prototype system transitioned to the U.S. Air Force Next Generation Sensors program of record. Additional details are classified.	10.000	-	-
Title: Navy/Marine Expeditionary Ship Interdiction System (NMESIS) ***Description:*** NMESIS developed long-term and short-term solutions for an anti-ship missile to be integrated within a High Mobility Artillery Rocket System (HIMARS) battalion to sustain a joint force military advantage. This prototype leveraged U.S. Army, U.S. Navy, and U.S. Marine Corps efforts on anti-ship capabilities. Using FY 2019 funding, NMESIS completed the development, design, build, and test of an anti-ship missile system on a remotely operated ground unit expeditionary fires vehicle. NMESIS transitioned to an existing U.S. Marine Corps HIMARS program of record. Additional details are classified.	9.600	-	-
Title: DYNAMIC ***Description:*** This project developed and demonstrated an enterprise-wide dynamic intelligence surveillance and reconnaissance (ISR) collection management and tasking capability to improve use of multi-intelligence ISR resources for faster target acquisition and tracking for time sensitive threats. The DYNAMIC prototype includes a sensor framework for interconnecting sensors and processing systems, analytics to assist with tasking sensors and processing data, and a user interface to visualize the sensor common operating picture and manage intelligence collection requirements. In FY 2019, the project designed and developed the multi-intelligence sensor message schema for discovery, status, and tasking; integrated sensor interface components for access to tactical sensors, processing analytics, and user interfaces for intelligence collection management; and, demonstrated the system in a live sensor test environment followed by a user assessment. The system transitioned to U.S. Army programs of record and informed the U.S. Army distributed common ground station systems and sensors for aerial intelligence program.	9.530	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Short Take-Off and Landing for Proliferated Intelligence, Surveillance, and Reconnaissance ***Description:*** This project addressed gaps in coverage for time sensitive target defeat missions by designing, developing, and demonstrating an operational short take-off and landing (STOL) prototype system for unmanned aerial systems (UAS). The prototype system consists of hardware that externally augments and increases launch acceleration as well as increases landing deceleration with the goal of achieving both take-off and landing in under 250 feet. The STOL capability significantly expands UAS basing options in areas that have geographic challenges. Using FY 2019 funding, the project completed system analysis, design, and fabrication of the STOL system. The project culminated with demonstrations of two different UAS platforms. The STOL system transitioned to the U.S. Special Operations Command Long Endurance Aerial Platform program of record.	6.186	-	-
Title: Autonomous Systems Focus Area ***Description:*** This focus area advances autonomous platforms in coordination with the Services and Agencies to enable more effective teaming and collaboration of autonomous systems, improve reasoning and intelligence, and build trust between humans and autonomous systems. Prototype technologies will advance capabilities such as scalable autonomous behavior, collaborative actions between autonomous systems, human-above-the-loop control, and hardware for next-generation autonomous systems. With emphasis placed on open system architectures, these prototype capabilities will reduce technical and integration risk and provide joint, cross-cutting value to the warfighter. A cross functional team, led by OUSD(R&E), will review and select prototyping proposals from across the DoD in the year of execution. ***FY 2020 Plans:*** RPP anticipates supporting one to two autonomy projects in FY 2020. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2021 Plans:*** RPP anticipates supporting one to two autonomy projects in FY 2021. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding for this focus area in FY 2021 decreases to support acceleration of other high priority prototypes efforts.	0.000	12.000	11.450
Title: Advanced Hypersonic Weapons Focus Area ***Description:*** This focus area matures key component technologies through rapid prototyping to enable advanced hypersonic weapon systems while informing concepts of operations (CONOPS). These efforts will significantly improve warfighting posture in a near-peer, regional conflict by providing the joint force with weapon systems that are high speed, highly maneuverable, and difficult to defend against. Example prototypes may include air-breathing propulsion and hypersonic guidance systems;	0.000	16.000	45.000

Exhibit R-2A, RDT&E Project Justification: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
autonomous, man-in-the-loop systems; integration of new weapons into battle management systems; and other prototypes to inform CONOPS. Specific activities include development, test, and optimization of hypersonic weapon subsystems; and, integration of weapon prototypes. These prototyping activities will enable faster transition of advanced technologies to the warfighter by reducing technical risk, informing joint force CONOPS, and demonstrating new warfighter capabilities. A cross functional team, led by OUSD(R&E), will review and select prototyping proposals from across the DoD in the year of execution. ***FY 2020 Plans:*** RPP anticipates supporting one to two weapons projects in FY 2020. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2021 Plans:*** RPP anticipates supporting one to two weapons projects in FY 2021. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Hypersonic is a DoD modernization priority and funding for this focus area increases in FY 2021 to support acceleration of new capabilities.			
Title: Fully Networked Command, Control, and Communications Focus Area ***Description:*** This focus area demonstrates joint prototypes and concepts of operation for fully networked command, control, and communications (NC3) across joint, multi-domain operations. Prototypes will help advance Service and Agency technology roadmaps by addressing high-performance, low power embedded processing and developing algorithms for automatic resource allocating, self-configuring, and self-healing networks. Prototype systems will be demonstrated in operationally relevant, contested environments to help the United States maintain its communication advantage in near-peer conflict. ***FY 2020 Plans:*** RPP anticipates supporting one to two fully NC3 projects in FY 2020. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2021 Plans:*** RPP anticipates supporting one to two fully NC3 projects in FY 2021. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding for this focus area in FY 2021 decreases to support acceleration of other high priority prototypes efforts.	0.000	11.000	10.000
Title: Electronic Warfare (EW) Technologies Focus Area	0.000	11.000	10.573

Exhibit R-2A, RDT&E Project Justification: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Description: This focus area develops new concepts and key technologies to improve the ability to detect, locate, and classify electronic threats; deter electronic attacks targeting military operations; defeat electronic attacks using kinetic and non-kinetic methods; and, create electromagnetic interference effects on enemy systems. Prototype technologies will advance capabilities like air and ground electronic support (ES) and electronic attack (EA), tactical EW systems, and EW mission command systems. Specific activities include development and testing of electronic protection systems, distributed and coordinated ES/EA systems, broadband radio frequency components and systems, and EW analysis support systems. These prototype capabilities will reduce technical and integration risk and provide joint, cross-cutting value to the warfighter. A cross functional team, led by OUSD(R&E), will review and select prototyping proposals from across the DoD in the year of execution. ***FY 2020 Plans:*** RPP anticipates supporting one Electronic Warfare projects in FY 2020. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2021 Plans:*** RPP anticipates supporting one Electronic Warfare projects in FY 2021. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 shows a marginal increase over FY 2020 and reflects increased focus within this priority area.			
Title: Sensors for Intelligence, Surveillance, and Reconnaissance (ISR) Focus Area	0.000	11.000	10.000
Description: This focus area leverages opportunities for collaboration to develop and demonstrate improved capability in long-range detecting and tracking, autonomous sensor allocation, and enhanced processing methods to ensure situation awareness is maintained in near-peer conflict. Example projects include demonstration of advanced sensors; anti-jam antenna systems; materials with novel electromagnetic properties; on-board processing; fusion of intelligence data; and, platform integration testing. These prototype capabilities will reduce technical and integration risk and provide joint, cross-cutting value to the warfighter. A cross functional team, led by OUSD(R&E), will review and select prototyping proposals from across the DoD in the year of execution. ***FY 2020 Plans:*** RPP anticipates supporting one to two sensors projects in FY 2020. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2021 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
RPP anticipates supporting one to two sensors projects in FY 2021. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding for this focus area in FY 2021 decreases to support acceleration of other high priority prototypes efforts.			
Title: Fire Control Focus Area ***Description:*** This focus area develops and advances fire control systems to bring faster, more efficient target execution capabilities across multiple domains to the Combatant Commands. Through coordination with the Services, projects will advance subsystems to include target tracking, weapon guidance, command, and control with deliverables that include initial capability, concept of employment, and concept of operations. Prototypes developed through these efforts will transition to Service programs of record enabling the United States to maintain technological superiority. A cross functional team, led by OUSD(R&E), will review and select prototyping proposals from across the DoD in the year of execution. ***FY 2020 Plans:*** RPP anticipates supporting one to two Fire Control projects in FY 2020. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2021 Plans:*** RPP anticipates supporting one to two Fire Control projects in FY 2021. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding for this focus area in FY 2021 decreases to support acceleration of other high priority prototypes efforts.	0.000	11.351	15.000
Accomplishments/Planned Programs Subtotals	96.196	72.351	102.023

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

RPP leverages the Services' and Defense Agencies' most efficient and effective acquisition approach for rapid prototyping. This includes using Other Transaction Authorities and new or existing contract vehicles.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

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
The Perfect Storm	MIPR	U.S. Army Communications-Electronics Command (6 MIPRs) : Aberdeen Proving Ground, MD	4.713	0.340	Jun 2019	-		-		-		-	Continuing	Continuing	-
The Perfect Storm	MIPR	MULTI : MULTI	3.271	5.617	Sep 2019	-		-		-		-	Continuing	Continuing	-
Seeker Technology for Hypervelocity Projectiles	MIPR	U.S. Naval Sea Systems Command : Washington Navy Yard, D.C.	0.500	4.400	Sep 2019	-		-		-		-	Continuing	Continuing	-
High-Volume Long-Range Precision Strike	MIPR	NAVAL SURFACE WARFARE : DAHLGREN VA (7 MIPRS)	-	3.843	Sep 2019	-		-		-		-	Continuing	Continuing	-
High-Volume Long-Range Precision Strike	MIPR	OFFICE OF NAVAL RESEARCH : ARLINGTON, VA (4 MIPRS)	-	1.262	Sep 2019	-		-		-		-	Continuing	Continuing	-
High-Volume Long-Range Precision Strike	MIPR	Army Armaments Center : Picatinny Arsenal New Jersey	-	8.864	Sep 2019	-		-		-		-	Continuing	Continuing	-
High-Volume Long-Range Precision Strike	MIPR	Naval Information Warfare Center : San Diego, CA	-	0.075	Sep 2019	-		-		-		-	Continuing	Continuing	-
TALON HAYABUSA	MIPR	Naval Research Laboratory : Washington, DC	-	0.616	Sep 2019	-		-		-		-	Continuing	Continuing	-
TALON HAYABUSA	MIPR	Naval Surface Warfare Center (Crane) : Crane, Indiana	-	0.702	Sep 2019	-		-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

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
TALON HAYABUSA	MIPR	Army Contracting Command : Picatinny Arsenal, New Jersey	-	10.502	Sep 2019	-		-		-		-	Continuing	Continuing	-
Next Generation Information Awareness	MIPR	US Southern Command (2 MIPRs) : Fort Bragg, NC	-	9.999	Sep 2019	-		-		-		-	Continuing	Continuing	-
Real-Time Artificial Intelligence/Machine Learning (AI/ML) on Platforms; Embedded High Performance Computing at the Edge	MIPR	Air Force Research Laboratory : Rome, New York	-	6.750	Sep 2019	-		-		-		-	Continuing	Continuing	-
RED CYCLOPS	MIPR	National Geospatial Agency (3 MIPRs) : Springfield, VA	-	7.561	Sep 2019	-		-		-		-	Continuing	Continuing	-
RED CYCLOPS	MIPR	Air Force Research Laboratory : Wright Patterson AFB OH	-	0.350	Sep 2019	-		-		-		-	Continuing	Continuing	-
Assisted Target Recognition for Intelligence, Surveillance, Reconnaissance	MIPR	Air Force Life Cycle Management Center (2 MIPRs) : Wright Patterson AFB OH	-	5.830	Sep 2019	-		-		-		-	Continuing	Continuing	-
Assisted Target Recognition for Intelligence, Surveillance, Reconnaissance	MIPR	MULTI : MULTI	-	4.170	Sep 2019	-		-		-		-	Continuing	Continuing	-
Navy/Marine Expeditionary Ship Interdiction System (NMESIS)	MIPR	Army Armaments Center : Picatinny Arsenal, NJ	-	6.000	Sep 2019	-		-		-		-	Continuing	Continuing	-
Navy/Marine Expeditionary Ship Interdiction System (NMESIS)	MIPR	MARCORSYSCOM : Quantico, VA	-	3.600	Sep 2019	-		-		-		-	Continuing	Continuing	-
DYNAMIC	MIPR	USA Futures Command/	-	9.530	Sep 2019	-		-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

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
		Intelligence and Info Warfare : Aberdeen Proving Ground, MD													
Short Take-Off and Landing for Proliferated Intelligence, Surveillance, and Reconnaissance	MIPR	Air Force Research Laboratory : Kirtland AFB NM	-	6.185	Sep 2019	-		-		-		-	Continuing	Continuing	-
VARIOUS	MIPR	MULTI : MULTI	138.500	-		72.351	Sep 2020	102.023	Sep 2021	-		102.023	Continuing	Continuing	-
		Subtotal	146.984	96.196		72.351		102.023		-		102.023	Continuing	Continuing	N/A

	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
Project Cost Totals	146.984	96.196		72.351		102.023		-		102.023	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

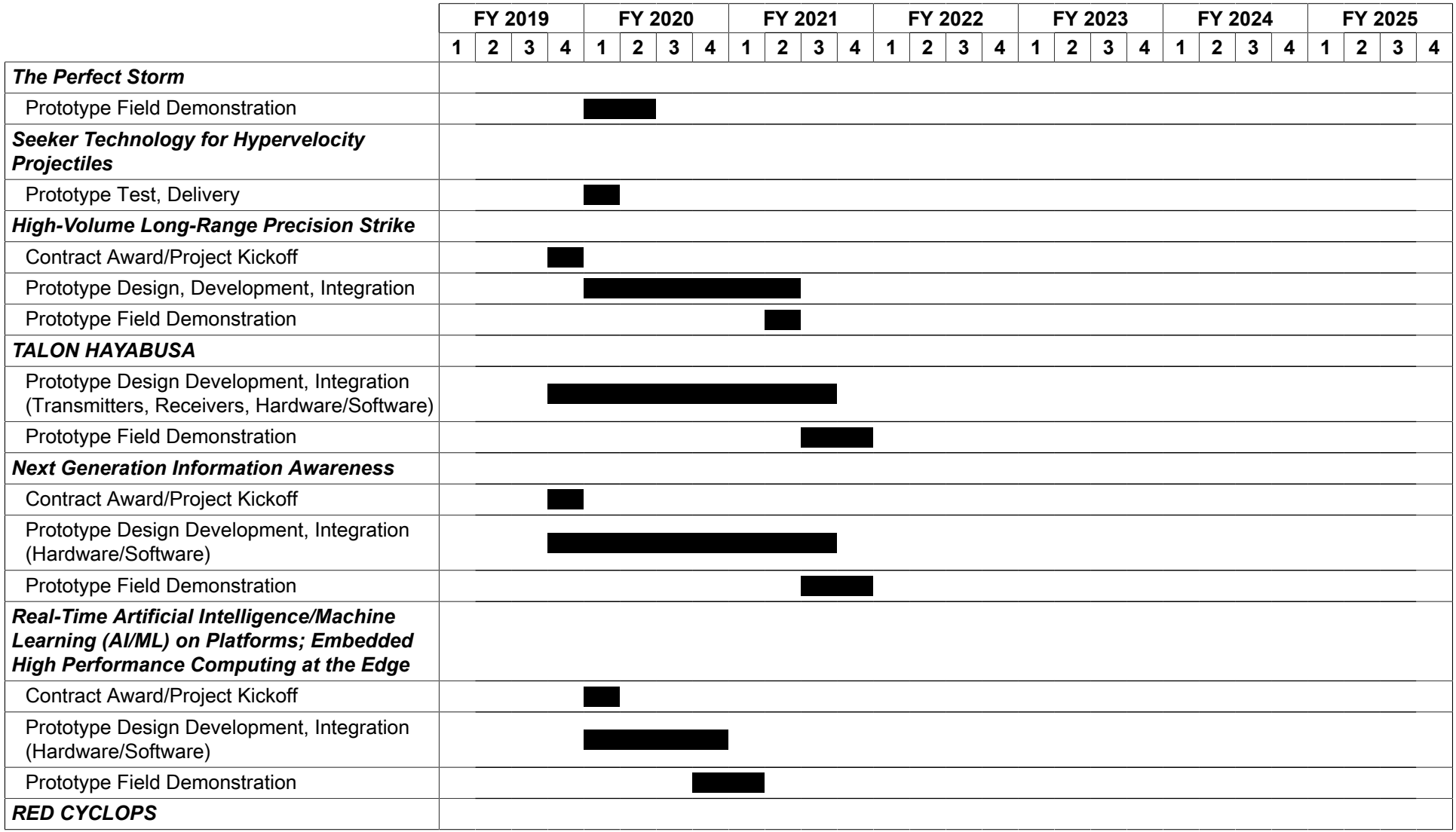

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

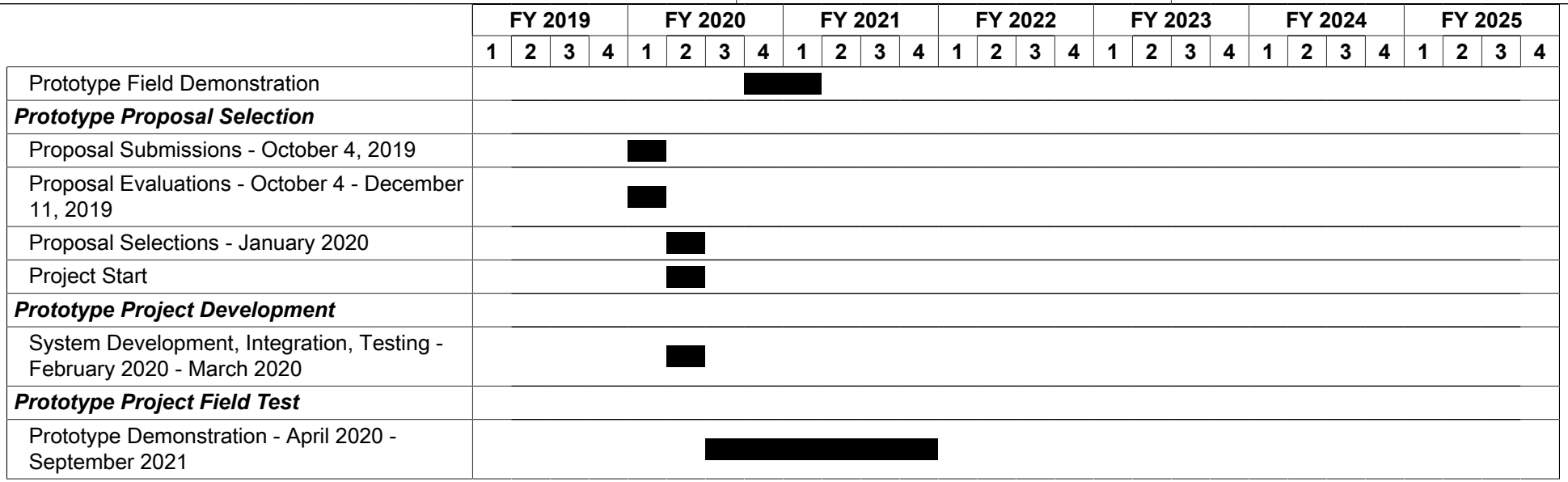

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Office of the Secretary Of Defense		Date: February 2020
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
The Perfect Storm				
Prototype Field Demonstration	1	2020	2	2020
Seeker Technology for Hypervelocity Projectiles				
Prototype Test, Delivery	1	2020	1	2020
High-Volume Long-Range Precision Strike				
Contract Award/Project Kickoff	4	2019	4	2019
Prototype Design, Development, Integration	1	2020	2	2021
Prototype Field Demonstration	2	2021	2	2021
TALON HAYABUSA				
Prototype Design Development, Integration (Transmitters, Receivers, Hardware/ Software)	4	2019	3	2021
Prototype Field Demonstration	3	2021	4	2021
Next Generation Information Awareness				
Contract Award/Project Kickoff	4	2019	4	2019
Prototype Design Development, Integration (Hardware/Software)	4	2019	3	2021
Prototype Field Demonstration	3	2021	4	2021
Real-Time Artificial Intelligence/Machine Learning (AI/ML) on Platforms; Embedded High Performance Computing at the Edge				
Contract Award/Project Kickoff	1	2020	1	2020
Prototype Design Development, Integration (Hardware/Software)	1	2020	4	2020
Prototype Field Demonstration	4	2020	1	2021
RED CYCLOPS				
Contract Award/Project Kickoff	1	2020	1	2020

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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Prototype Design Development, Integration (Hardware/Software)	1	2020	2	2021
Prototype Field Demonstration	3	2021	3	2021
Assisted Target Recognition for Intelligence, Surveillance, Reconnaissance				
Contract Award/Project Kickoff	4	2019	1	2020
Prototype Design Development, Integration (Hardware/Software)	1	2020	1	2021
Prototype Field Demonstration	1	2021	2	2021
Navy/Marine Expeditionary Ship Interdiction System (NMESIS)				
Contract Award/Project Kickoff	4	2019	4	2019
Prototype Design Development, Integration (Hardware/Software)	1	2020	4	2020
Prototype Field Demonstration	1	2021	2	2021
DYNAMIC				
Contract Award/Project Kickoff	4	2019	4	2019
Prototype Design Development, Integration (Hardware/Software)	1	2020	3	2021
Prototype Field Demonstration	3	2021	4	2021
Short Take-Off and Landing for Proliferated Intelligence, Surveillance, and Reconnaissance				
Contract Award/Project Kickoff	4	2019	4	2019
Prototype Design Development, Integration (Hardware/Software)	1	2020	4	2020
Prototype Field Demonstration	4	2020	1	2021
Prototype Proposal Selection				
Proposal Submissions - October 4, 2019	1	2020	1	2020
Proposal Evaluations - October 4 - December 11, 2019	1	2020	1	2020
Proposal Selections - January 2020	2	2020	2	2020
Project Start	2	2020	2	2020
Prototype Project Development				
System Development, Integration, Testing - February 2020 - March 2020	2	2020	2	2020

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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Prototype Project Field Test				
Prototype Demonstration - April 2020 - September 2021	3	2020	4	2021