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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2021 Office of the Secretary Of Defense **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 5: System Development & Demonstration (SDD)	<b>R-1 Program Element (Number/Name)</b> PE 0604165D8Z I Prompt Global Strike Capability Development
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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	1,595.236	525.670	151.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
166: Alternate Re-Entry System/ Warhead Engineering	1,595.236	525.670	51.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
065: Joint Hypersonics	-	0.000	100.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

**Note**  
In FY 2021, the Prompt Global Strike program transfers to the Services for execution.

**A. Mission Description and Budget Item Justification**

This Program Element (PE) was established to develop and demonstrate technologies and applications that advance Conventional Prompt Global Strike (CPGS) warfighting capabilities. The program uses a national team with participation from multiple Services, Agencies, national research laboratories, and industry partners selected on a competitive basis. Program emphasis is on demonstrating component and subsystem technology maturity with risk reduction initiatives highlighted by flight tests. The program funds the design, development, and experimentation of boosters, payload delivery vehicles (PDVs), non-nuclear warheads, thermal protection systems, guidance systems, test range modernization, and mission planning and enabling capabilities. To support these development activities, the program procures modeling and simulation capabilities, ground testing, command and control interfaces, test range support, and launch system infrastructure. Additionally, expert resources address strategic policy and treaty issues. Flight and ground test outcomes drive program timing and DoD hypersonic budget investments.

The Hypersonic Prompt Global Strike Capability Development Program Element supports the National Defense Strategy's focus on technological advancements that enhance deterrence and increase strategic flexibility, freedom of action, and Joint Force lethality.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	465.852	107.000	0.000	-	0.000
Current President's Budget	525.670	151.000	0.000	-	0.000
Total Adjustments	59.818	44.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-56.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	100.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	9.900	-			
• SBIR/STTR Transfer	0.000	-			
• Reprogramming: Long Range Hypersonic Weapon (LRHW)	50.000	-	-	-	-

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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>
0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 5: System Development &amp; Demonstration (SDD)</i>	PE 0604165D8Z I <i>Prompt Global Strike Capability Development</i>

• Other Program Adjustments	-0.082	-	-	-	-
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**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 166: *Alternate Re-Entry System/Warhead Engineering*

*Congressional Add: Thermal Protection Systems and Industrial Capacity: Accelerate CPS Technology Development Flight Demonstrations and increase in Thermal Protection Systems Industrial Capacity*

Congressional Add Subtotals for Project: 166

**Project:** 065: *Joint Hypersonics*

*Congressional Add: Joint Hypersonics Transition Office*

Congressional Add Subtotals for Project: 065

Congressional Add Totals for all Projects

	FY 2019	FY 2020
	203.500	-
	203.500	-
	-	100.000
	-	100.000
	203.500	100.000

**Change Summary Explanation**

The FY 2019 reprogramming adjustments are the net of a \$9.000 million reprogramming to provide additional investment in a classified program detailed in the R-2A project titled "Munitions Program", and a \$50.000 million reprogramming to support a multi-year effort to accelerate the early deployment of a prototype for a mobile, land-based intermediate-range hypersonic weapon system.

The FY 2020 Congressional increase of \$44.000 million is the net of a \$100.000 million increase to establish the Joint Hypersonics Transition Office, a reduction of \$31.000 million which is being redirected to Army Research, Development, Test & Evaluation (RDT&E) budget line 100, and a reduction of \$25.000 million to the classified Munitions Program detailed in the R-2A.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Office of the Secretary Of Defense										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604165D8Z / <i>Prompt Global Strike Capability Development</i>			<b>Project (Number/Name)</b> 166 / <i>Alternate Re-Entry System/Warhead Engineering</i>				
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
166: <i>Alternate Re-Entry System/Warhead Engineering</i>	1,595.236	525.670	51.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**  
In FY 2021, the Prompt Global Strike program transfers to the Services for execution.

**A. Mission Description and Budget Item Justification**

This Program Element (PE) was established to develop and demonstrate technologies and applications that advance Prompt Global Strike warfighting capabilities. The program uses a national team with participation from the Services, Agencies, national research laboratories, and involvement of industry. Program emphasis is on demonstrating component and subsystem technology maturity with risk reduction initiatives highlighted by flight tests. The program funds the design, development, and experimentation of boosters, payload delivery vehicles (PDVs), non-nuclear warheads, thermal protection systems, guidance systems, test range modernization, and mission planning and enabling capabilities. To support these development activities, the program procures modeling and simulation capabilities, ground testing, command and control interfaces, test range support, and launch system infrastructure. Additionally, expert resources address strategic policy and treaty issues. Flight and ground test outcomes drive program timing and DoD hypersonic budget investments.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Alternative Re-Entry System/Warhead Engineering and Delivery Vehicle Options/Development	255.022	0.000	-
<b>Description:</b> This effort will test and evaluate alternative booster and delivery vehicle options and will assess the feasibility of producing an affordable solution to fill the Prompt Global Strike capability gap. It will mature technologies that could lead to advanced systems with the following characteristics: effects on targets in a very short-period of time from execution order; non-ballistic flight over the majority of the flight path; positive control from launch to impact; adequate cross-range/maneuverability to avoid overflight issues; and controlled stage drop over Broad Ocean Area. The technologies developed will have cross-Service and cross-concept applicability and will be developed through close coordination among DoD components. This activity will support both ground and flight tests and provide all national data to inform a potential acquisition program.			
FY 2019 funding designed, procured, and produced all necessary materials to conduct and execute the Flight Experiment 2 (FE-2) on schedule. FE-2 is the highest priority test element in the Conventional Prompt Strike (CPS) portfolio, with systems integration, production, and test data directly contributing to fielding an early operational capability. In addition, FY 2019 funds were expended preparing for Flight Test 3 (FT-3) and Flight Experiment 3 (FE-3), enhancing the pace of test launches, and serving to refine booster and glide body data immediately prior to operational production and fielding. FY 2019 funds were also invested to research and mature technologies critical to fielding effective hypersonic weapon systems. These include: ordnance research			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Office of the Secretary Of Defense		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604165D8Z / <i>Prompt Global Strike Capability Development</i>	<b>Project (Number/Name)</b> 166 / <i>Alternate Re-Entry System/Warhead Engineering</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p>(fuzing, effects and lethality); navigation, guidance, and control research to address operation in contested environments; test and evaluation research to improve the capabilities of broad ocean area test ranges; mission planning research; and structures and aerothermodynamics research.</p> <p>Funding reprogrammed into this PE was leveraged to support development, systems engineering, program management, test execution and planning for the Army Long Range Hypersonic Weapon system.</p> <p><b>FY 2020 Plans:</b>            Complete U.S. industrial capacity improvements to produce components for Prompt Global Strike Common Hypersonic Glide Bodies.            FY 2020 funding plans, Prompt Global Strike will:            - Continue U.S. industrial capacity improvements to produce components for Prompt Global Strike Common Hypersonic Glide Bodies            - Continue to support Common Hypersonic Glide Body manufacturing, demonstration, test, and production efforts            - Support development of future flight test systems for Prompt Global Strike concepts as required            - Continue studies for future system development to examine cost, lethality, aerodynamic and thermal characteristics, command and control, operational aspects, and technology integrated product teams            - Update Technology Development Strategy and system engineering documentation based on updated Prompt Global Strike engineering and test data, trade studies, and on-going risk reduction/technology development efforts            - Continue Systems Engineering support to Prompt Global Strike program and acquisition            - FY 2020 funding will continue to support post flight analysis and reporting into FY 2021</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>            The funding profile decreases in FY 2021 because the Prompt Global Strike program transfers to the Services for execution.</p>				
<p><b>Title:</b> Munitions Program</p> <p><b>Description:</b> This is a classified munitions program. Additional information available upon request.</p> <p><b>FY 2020 Plans:</b>            Complete classified munitions program. Additional information available upon request.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>            The funding profile decreases in FY 2021 because this munitions program is complete in FY 2020.</p>		67.148	51.000	-
<b>Accomplishments/Planned Programs Subtotals</b>		322.170	51.000	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Office of the Secretary Of Defense		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604165D8Z / <i>Prompt Global Strike Capability Development</i>	<b>Project (Number/Name)</b> 166 / <i>Alternate Re-Entry System/Warhead Engineering</i>	
		<b>FY 2019</b>	<b>FY 2020</b>
<b>Congressional Add:</b> Thermal Protection Systems and Industrial Capacity: Accelerate CPS Technology Development Flight Demonstrations and increase in Thermal Protection Systems Industrial Capacity		203.500	-
<b>FY 2019 Accomplishments:</b> The enhancement added significantly to the ability to transition hypersonic production from the laboratory to industry. The investments will significantly increase thermal protection system industrial capacity, essential for economic production of glide bodies in operationally significant quantities. These funds also contributed to industry contracts to realize affordability and production improvements in hypersonic glide bodies, allowing for cost-effective production of more capable systems. The funds were also leveraged to establish an early land-based operational hypersonic capability in the Long-Range Hypersonic Weapon (LRHW), with contracts initiated for long-lead procurement of mobile transporter/erector/launcher (TEL), Command/Control equipment, and LRHW all-up round plus canister elements. Similarly, the funds have been utilized to establish an early sea-based Intermediate Range Conventional Prompt Strike capability, with both surface and sub-surface capability planned. In addition, funding has been invested in the creation of a Mach 10 Quiet Wind Tunnel at the University of Notre Dame, a necessary investment to facilitate future hypersonic research.			
<b>Congressional Adds Subtotals</b>		203.500	-
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
N/A			

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2021 Office of the Secretary Of Defense **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604165D8Z / <i>Prompt Global Strike Capability Development</i>	<b>Project (Number/Name)</b> 166 / <i>Alternate Re-Entry System/Warhead Engineering</i>
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<b>Test and Evaluation (\$ in Millions)</b>				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			
Alternative Reentry System/Warhead Engineering and Delivery Vehicle Options/Development	Allot	Army Space and Missile Defense Center/Navy Strategic Systems Program : Huntsville AL/Washington DC	1,595.236	525.670		51.000		-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			1,595.236	525.670		51.000		-		-		-	Continuing	Continuing	N/A

**Remarks**  
NA

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	1,595.236	525.670	51.000	-	-	-	Continuing	Continuing	N/A

**Remarks**  
NA

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2021 Office of the Secretary Of Defense		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604165D8Z / <i>Prompt Global Strike Capability Development</i>	<b>Project (Number/Name)</b> 166 / <i>Alternate Re-Entry System/Warhead Engineering</i>

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<b>CPGS Flight Experiment 2</b>																												
Fabrication/Integration	█	█																										
Test Execution			█	█	█	█	█																					
Post Test Analysis & Reporting						█	█	█	█																			
<b>CPGS Flight Experiment 3</b>																												
Planning/Design	█	█	█																									
Fabrication/Integration					█	█	█	█																				
Test Execution									█	█	█	█	█															
Post Test Analysis & Reporting													█	█	█													
<b>CPGS Flight T-3</b>																												
Fabrication/Integration	█	█	█	█																								
Test Execution					█	█	█	█	█																			
Post Test Analysis and Reporting													█	█	█													

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Office of the Secretary Of Defense		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604165D8Z / <i>Prompt Global Strike Capability Development</i>	<b>Project (Number/Name)</b> 166 / <i>Alternate Re-Entry System/Warhead Engineering</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>CPGS Flight Experiment 2</b>				
Fabrication/Integration	1	2019	2	2019
Test Execution	2	2019	4	2020
Post Test Analysis & Reporting	2	2020	3	2021
<b>CPGS Flight Experiment 3</b>				
Planning/Design	1	2019	4	2019
Fabrication/Integration	1	2020	1	2021
Test Execution	2	2021	3	2022
Post Test Analysis & Reporting	1	2022	1	2023
<b>CPGS Flight T-3</b>				
Fabrication/Integration	1	2019	2	2020
Test Execution	2	2020	4	2021
Post Test Analysis and Reporting	3	2021	4	2022

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Office of the Secretary Of Defense **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604165D8Z / <i>Prompt Global Strike Capability Development</i>	<b>Project (Number/Name)</b> 065 / <i>Joint Hypersonics</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
065: <i>Joint Hypersonics</i>	-	0.000	100.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

The Joint Hypersonics project code was created in FY 2020 as a result of a Congressional add that highlighted the threats to national security posed by hypersonic weapons and called for the establishment of the Joint Hypersonics Transition Office.

**A. Mission Description and Budget Item Justification**

Create and implement the Joint Hypersonics Transition Office under the OUSD(R&E) Assistant Director, Hypersonics to develop and implement an integrated science and technology (S&T) roadmap for hypersonics, establish a university consortium for hypersonics research, develop the necessary workforce to support Department efforts to expedite testing, evaluation, and acquisition of hypersonic weapons systems, and coordinate current and future research, development, prototyping, test, and evaluation programs across the Department of Defense.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2019	FY 2020
<b><i>Congressional Add:</i></b> Joint Hypersonics Transition Office	-	100.000
<b><i>FY 2020 Plans:</i></b> The Joint Hypersonics Transition Office will: 1) develop and implement an integrated science and technology roadmap for hypersonics, 2) establish a university consortium for hypersonics research, 3) develop a workforce to support Department efforts to expedite testing, evaluation, and acquisition of hypersonic weapons systems, and 4) coordinate current and future research, development, prototyping, test, and evaluation programs across the Department of Defense.		
<b>Congressional Adds Subtotals</b>	-	100.000

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

N/A

**Remarks**

**D. Acquisition Strategy**

NA

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2021 Office of the Secretary Of Defense **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604165D8Z / <i>Prompt Global Strike Capability Development</i>	<b>Project (Number/Name)</b> 065 / <i>Joint Hypersonics</i>
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<b>Product Development (\$ in Millions)</b>				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			
Hypersonics Road Map, university consortium and research/workforce development	TBD	TBD : TBD	-	-		100.000	Mar 2020	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	-		100.000		-		-		-	Continuing	Continuing	N/A

**Remarks**  
Resourcing and implementation of the Hypersonics Road Map, university consortium and research/workforce development is anticipated to be well into development by spring of 2020.

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	-	100.000	-	-	-	Continuing	Continuing	N/A

**Remarks**  
Additional support costs, test and evaluation cost, management service costs and description of Joint funding will be detailed following the initiation and development of the Joint Hypersonics Transition Office.

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2021 Office of the Secretary Of Defense		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604165D8Z / <i>Prompt Global Strike Capability Development</i>	<b>Project (Number/Name)</b> 065 / <i>Joint Hypersonics</i>

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<b>Joint Hypersonics Transition Office</b>	
Initiation of Joint Hypersonics Transition Office work plan and estimated completion	████████████████████

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Office of the Secretary Of Defense		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604165D8Z / <i>Prompt Global Strike Capability Development</i>	<b>Project (Number/Name)</b> 065 / <i>Joint Hypersonics</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Joint Hypersonics Transition Office</i></b>				
Initiation of Joint Hypersonics Transition Office work plan and estimated completion	3	2020	4	2021