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**Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy** **Date:** May 2021

<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>											
1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	PE 0604657M / <i>MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYST</i>											
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	0.000	19.312	29.467	42.144	-	42.144	-	-	-	-	-	-
7400: <i>Combat Capability Development Transition</i>	0.000	19.312	29.467	42.144	-	42.144	-	-	-	-	-	-

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

Organic Precision Fires (OPF) is a Service Force Design priority and will provide multiple echelons of the Fleet Marine Force with an organic, loitering, beyond-line-of-sight precision strike capability. OPF has demonstrated through extensive war-gaming and simulation, combined with experience gained in real world operations, that it will significantly improve the organic lethality of infantry and reconnaissance formations. Providing a Hunter (Group 2 UAS) - Killer (loitering munition) combination, OPF will deliver precision effects as well as surveillance before, during, and after striking targets, at ranges beyond 40 kilometers, while reducing the potential for collateral damage. As such, the OPF capability is a critical element of force modernization to close the gap between long range/precision fires and close-combat weapons.

OPF will develop a vehicle mounted, universal, multi-canister launch platform integrated onto multiple vehicles such as the Light Armored Vehicle (LAV) or Joint Light Tactical Vehicle (JLTV); a Stalker Group 2 UAS; and a Government Command and Control (C2) system. The OPF munitions will use a variety of fuse and munition combinations capable of providing diverse operational effects. OPF will also develop the offensive capability for the Long Range Unmanned Surface Vessel (LRUSV) as well as a single launch, dismounted capability, fired from the ground and transported via Ultra-Light Tactical Vehicle (ULTV) or backpack.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
Previous President's Budget	20.085	33.784	4.986	-	4.986
Current President's Budget	19.312	29.467	42.144	-	42.144
Total Adjustments	-0.773	-4.317	37.158	-	37.158
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-4.317			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.773	0.000			
• Program Adjustments	0.000	0.000	38.140	-	38.140
• Rate/Misc Adjustments	0.000	0.000	-0.982	-	-0.982

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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy Date: May 2021

**Appropriation/Budget Activity**  
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

**R-1 Program Element (Number/Name)**  
PE 0604657M / *MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYST*

**Change Summary Explanation**

The net increase of \$12.677M from FY 2021 to FY 2022 reflects the addition of one Stalker prototype, assembly and integration, platform specific integration and support, 116 test munitions, development of training systems, and extensive testing partially offset by the completion of the OPF demonstration, reduction of OPF prototypes, completion of swarming C2 software analysis.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Navy										<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 1319 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0604657M / MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYST				<b>Project (Number/Name)</b> 7400 / Combat Capability Development Transition			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
7400: <i>Combat Capability Development Transition</i>	0.000	19.312	29.467	42.144	-	42.144	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

Organic Precision Fires (OPF) is a Service Force Design priority and will provide multiple echelons of the Fleet Marine Force with an organic, loitering, beyond-line-of-sight precision strike capability. OPF has demonstrated through extensive war-gaming and simulation, combined with experience gained in real world operations, that it will significantly improve the organic lethality of infantry and reconnaissance formations. Providing a Hunter (Group 2 UAS) - Killer (loitering munition) combination, OPF will deliver precision effects as well as surveillance before, during, and after striking targets, at ranges beyond 40 kilometers, while reducing the potential for collateral damage. As such, the OPF capability is a critical element of force modernization to close the gap between long range/precision fires and close-combat weapons.

OPF will develop a vehicle mounted, universal, multi-canister launch platform integrated onto multiple vehicles such as the Light Armored Vehicle (LAV) or Joint Light Tactical Vehicle (JLTV); a Stalker Group 2 UAS; and a Government Command and Control (C2) system. The OPF munitions will use a variety of fuse and munition combinations capable of providing diverse operational effects. OPF will also develop the offensive capability for the Long Range Unmanned Surface Vessel (LRUSV) as well as a single launch, dismounted capability, fired from the ground and transported via Ultra-Light Tactical Vehicle (ULTV) or backpack.

FY 2021 conducted an OPF demonstration for competitive selection and follow-on award for three prototypes, integration, and testing on the LAV. FY 2022 completes integration for the LAV and conducts testing culminating in an Early Operational Assessment (EOA). FY 2022 also procures one prototype for integration and testing on the JLTV. The result of the EOA will inform a Service decision at which time the program will transition into the Major Capability Acquisition pathway at Milestone B.

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

	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
<b>Title:</b> Organic Precision Fires (OPF)	19.312	29.467	42.144	0.000	42.144
<b>Articles:</b>	-	3	1	-	1
<b>FY 2021 Plans:</b>					
- Conducted demonstration for competitive selection and follow-on award					
- Awarded follow-on prototype contract for three universal launchers, mounts, and Command and Control (C2) for the LAV					
- Continued development and integration of launcher including interface fabrication and C2					
- Conducted munitions developmental testing to obtain required environmental, safety, and cyber certifications					
- Conducted swarming C2 and software analysis for future development					
- Conducted adaptive behavior development					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Navy		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604657M / MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYST	<b>Project (Number/Name)</b> 7400 / Combat Capability Development Transition

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
- Initiated development of Gimble and Camera upgrade  <b>FY 2022 Base Plans:</b> - Complete C2, software development and assembly and integration of the universal launcher, mount, and C2 for the LAV - Complete development of Gimble and Camera upgrade - Procure one prototype Stalker for hunter capabilities - Procure 116 munitions for testing - Conduct Live Fire and Reliability testing - Conduct Early Operational Assessment (EOA) - Procure one prototype universal launcher, mount, and C2 for the JLTV - Initiate integration of universal mount for the JLTV variant - Initiate development of inert munitions - Initiate analysis and development of training systems requirements  <b>FY 2022 OCO Plans:</b> N/A  <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> The net increase of \$12.677M from FY 2021 to FY 2022 reflects the addition of one Stalker prototype, assembly and integration, platform specific integration and support, 116 test munitions, development of training systems, and extensive testing partially offset by the completion of the OPF demonstration, reduction of OPF prototypes, completion of swarming C2 software analysis.					
<b>Accomplishments/Planned Programs Subtotals</b>	19.312	29.467	42.144	0.000	42.144

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• PMC/4733: Organic Precision Fires (OPF)	0.000	0.000	0.000	-	0.000	-	-	-	-	-	-
• PMC/3088: Family of Loitering Munitions	0.000	0.000	0.000	-	0.000	-	-	-	-	-	-

**Remarks**

PE 0604657M: MARINE CORPS GROUND COMBAT/SUPPORTING AR...  
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Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604657M / MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYST	Project (Number/Name) 7400 / Combat Capability Development Transition

**D. Acquisition Strategy**

The OPF program's acquisition strategy is to utilize Mid-Tier Acquisition authorities to reduce program risk by developing a system level prototype, further maturing the technology and gaining user feedback to inform the Capabilities Development Document in support of a Service decision to transition to a Major Capability Acquisition pathway. It will leverage the prototype development and deliver capabilities for ground and sea launched loitering munitions. This strategy allows the program office to competitively develop and procure a multi-canister launcher, universal mounting kit, and a government command and control system to provide the Marine Corps with a scalable-tiered organic precision fires to meet current and future operational requirements.

The Marine Corps invited multiple vendors to participate in discussion leading to a proposal describing system attributes, cost, and schedule. Following an evaluation of all proposals, a competitive award to four vendors via Other Transaction Agreements (OTA) led to a demonstration in FY 2021 of their ability to meet emerging military needs. Following the demonstration, the program will award an OTA to a single vendor to further mature the technology, reduce risk, and refine requirements. In FY 2022, an Early Operational Assessment (EOA) with trained users and the OPF prototypes will validate employment concepts and further refine requirements. The result of the EOA will inform a Service decision at which time the program will transition into the Major Capability Acquisition pathway at Milestone B.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604657M / MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYST	<b>Project (Number/Name)</b> 7400 / Combat Capability Development Transition
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<b>Product Development (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
OPF Dev- Demonstration - OTA	C/FFP	Raytheon : Tucson, AZ	0.000	1.327	Jan 2020	0.000		0.000		-		0.000	-	-	-
OPF Dev- Demonstration - OTA	C/FFP	EFW : Fort Worth, TX	0.000	4.100	Jan 2020	0.000		0.000		-		0.000	-	-	-
OPF Dev- Demonstration - OTA	C/FFP	Aeroenvironment : Simi Valley CA	0.000	5.200	Jan 2020	1.003	Oct 2020	0.000		-		0.000	-	-	-
OPF Dev- Demonstration - OTA	C/FFP	Mistral : Bethesda, MD	0.000	4.813	Jan 2020	1.448	Nov 2020	0.000		-		0.000	-	-	-
OPF Vendor Development	C/CPFF	Mistral : Bethesda, MD	0.000	0.000		9.407	Apr 2021	5.610	Nov 2021	-		5.610	-	-	-
OPF Government Development (C2/Mount)	Various	Various : Various	0.000	0.000		5.455	Nov 2020	1.230	Nov 2021	-		1.230	-	-	-
Assembly and Installation	Various	Various : Various	0.000	0.000		0.000		6.226	Nov 2021	-		6.226	-	-	-
Prototype - Universal Mount	C/BA	NSWC : Panama City, FL	0.000	0.000		0.510	Nov 2021	0.170	Nov 2021	-		0.170	-	-	-
Prototype - C2	MIPR	SMDC : Huntsville, AL	0.000	0.000		0.990	Apr 2021	0.330	Nov 2021	-		0.330	-	-	-
Prototype - Universal Launcher	C/FFP	Mistral : Bethesda, MD	0.000	0.000		0.750	Apr 2021	0.250	Nov 2021	-		0.250	-	-	-
Prototype - Stalker (Hunter)	MIPR	DLA : Norfolk, VA	0.000	0.000		0.000		3.000	Nov 2021	-		3.000	-	-	-
Adaptive Behavior Dev	C/BA	Mistral : Bethesda, MD	0.000	0.000		2.372	Apr 2021	0.000		-		0.000	-	-	-
<b>Subtotal</b>			0.000	15.440		21.935		16.816		-		16.816	-	-	N/A

**Remarks**  
 Net decrease of \$5.119M in FY 2022 reflects the completion of the OPF demonstration, adaptive behaviors development, and reduction of OPF prototypes partially offset by the addition of one prototype Stalker for hunter capability, assembly and installation, and integration (universal mounting kit and C2 HW components with the LAV and JLTV).  
 FY21 OPF Phase II INC I prototype development was broken out to reflect development, demonstration, and prototype costs for each OPF component.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604657M / MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYST	<b>Project (Number/Name)</b> 7400 / Combat Capability Development Transition
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<b>Support (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
OPF Systems Spt	MIPR	SMDC : Huntsville, AL	0.000	1.957	Jan 2020	0.000		0.000		-		0.000	-	-	-
OPF Engineering Support	Various	Various : Various	0.000	0.000		0.879	Nov 2020	1.804	Nov 2021	-		1.804	-	-	-
Training System Development	MIPR	SMDC : Huntsville, AL	0.000	0.000		0.000		1.862	Nov 2021	-		1.862	-	-	-
JLTV Platform Support	Various	Various : Various	0.000	0.000		0.000		0.883	Jan 2022	-		0.883	-	-	-
LAV Platform Support	Various	Various : Various	0.000	0.000		0.537	Nov 2020	1.212	Nov 2021	-		1.212	-	-	-
Swarming Analysis	MIPR	GTRI : Atlanta, GA	0.000	0.000		1.341	Dec 2020	0.000		-		0.000	-	-	-
<b>Subtotal</b>			0.000	1.957		2.757		5.761		-		5.761	-	-	N/A

**Remarks**  
Net increase of \$3.004M in FY 2022 supports the development of training systems, increased platform specific support, and OPF engineering support to include safety and cyber security; and completion of swarming analysis.

<b>Test and Evaluation (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Government C2 and Dev Testing	Various	Various : Various	0.000	1.915	Feb 2020	1.045	Nov 2020	1.093	Nov 2021	-		1.093	-	-	-
OPF Munitions Test Assets	C/FFP	Mistral : Bethesda, MD	0.000	0.000		0.000		12.760	Nov 2021	-		12.760	-	-	-
OPF Munitions Testing	Various	Various : Various	0.000	0.000		1.450	Jan 2021	1.922	Jan 2022	-		1.922	-	-	-
Early Operational Assessment (EOA)	WR	MCOTEA : Quantico, VA	0.000	0.000		0.000		1.200	Nov 2021	-		1.200	-	-	-
<b>Subtotal</b>			0.000	1.915		2.495		16.975		-		16.975	-	-	N/A

**Remarks**  
Increase of \$14.480M in FY 2022 supports the purchase of 116 OPF munitions as test assets and EOA support from MCOTEA.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604657M / MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYST	<b>Project (Number/Name)</b> 7400 / Combat Capability Development Transition
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<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Travel	Various	Various : Various	0.000	0.000		0.150	Oct 2020	0.182	Oct 2021	-		0.182	-	-	-
Program/Cost Management	Various	Various : Various	0.000	0.000		2.130	Oct 2020	2.410	Oct 2021	-		2.410	-	-	-
<b>Subtotal</b>			0.000	0.000		2.280		2.592		-		2.592	-	-	N/A

**Remarks**  
Management services added to reflect funding for Cost support, Program Management support, and SBIR Taxes.

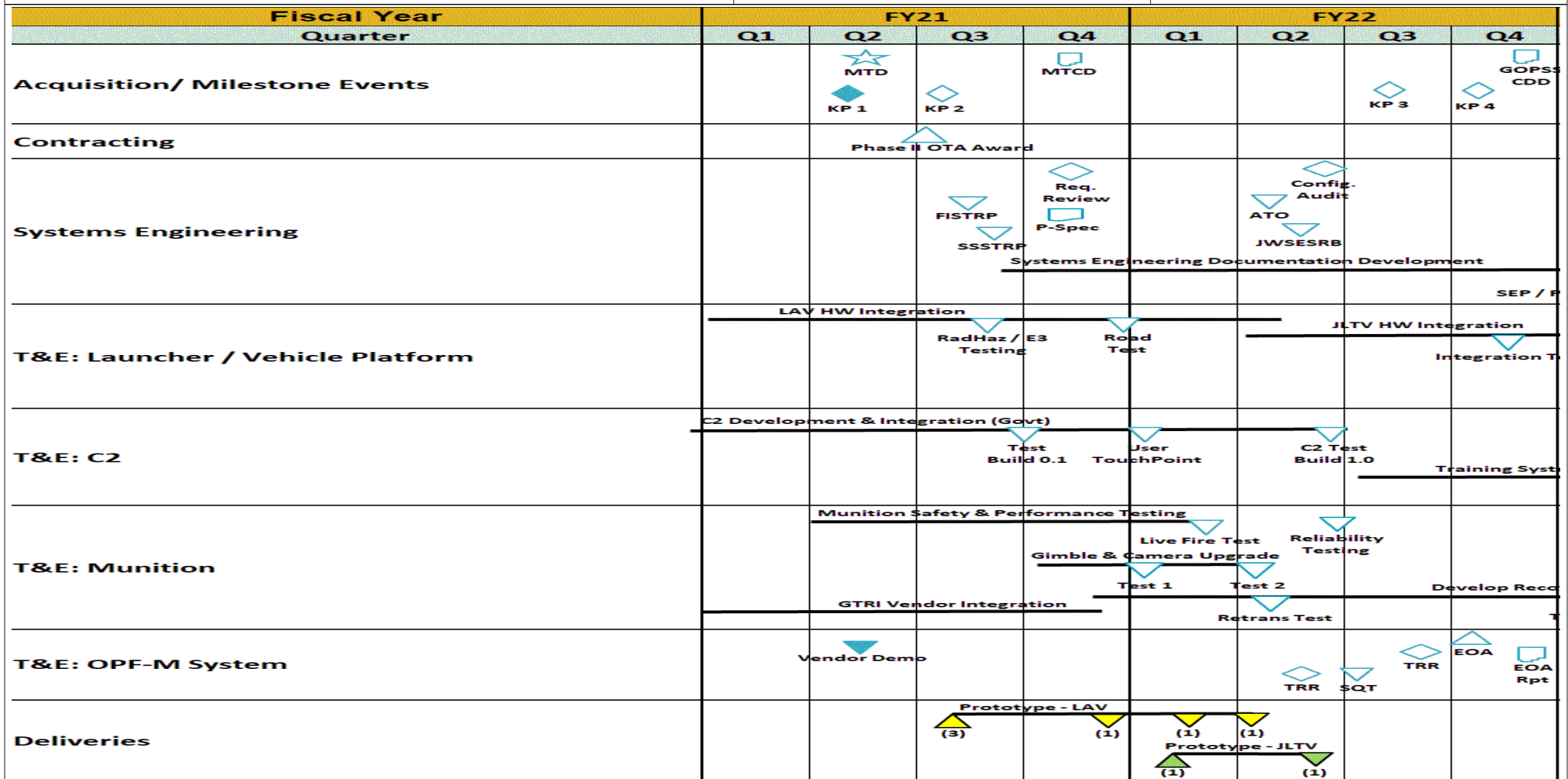
	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	0.000	19.312	29.467	42.144	-	42.144	-	-	N/A

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy Date: May 2021

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604657M / MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYST	<b>Project (Number/Name)</b> 7400 / Combat Capability Development Transition
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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Navy		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604657M / MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYST	<b>Project (Number/Name)</b> 7400 / Combat Capability Development Transition

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 7400</b>				
Prototype Award (LAV)	3	2021	3	2021
Prototype Award (JLTV)	1	2022	1	2022
Live Fire Testing - Munitions	1	2022	1	2022
Early Operational Testing	4	2022	4	2022