Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Office of the Secretary Of Defense	Date: February 2015
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 0604250D8Z / *Advanced Innovative Technologies*

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	0.000	125.811	174.752	469.798	-	469.798	422.206	104.195	-	-	Continuing	Continuing
P250: *Advanced Innovative Technologies*	0.000	125.811	174.752	469.798	-	469.798	422.206	104.195	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Strategic Capabilities Office (SCO) identifies, analyzes, demonstrates, and transitions game-changing applications of existing and near-term technology (and other U.S. Government capabilities) to shape and counter emerging threats. Currently focused on the Asia-Pacific Rebalance, SCO combines capability innovation with concepts of operation and information management to develop novel concepts often crossing Service, Defense-Intelligence, and multi-classification divides. This helps to solve critical national security challenges in partnership with the Services, Defense Agencies, Combatant Commands (COCOMS), Joint Chiefs of Staff, Intelligence Community, and the Office of the Secretary of Defense (OSD). SCO analyzes, demonstrates, and red-teams these concepts on an accelerated time frame to enable subsequent programmatic decisions on alternative capabilities that have greater mission impact and lower cost.

The Advanced Innovative Technologies Program Element (PE) contains projects that include in-depth analysis to determine technical and operational performance and risk, component and subsystem-level prototyping and testing to reduce risk, and operational demonstrations to prove concept viability prior to subsequent programmatic decisions. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	129.883	190.000	76.000	-	76.000
Current President's Budget	125.811	174.752	469.798	-	469.798
Total Adjustments	-4.072	-15.248	393.798	-	393.798
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-15.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.061	-			
• SBIR/STTR Transfer	-4.011	-			
• Realignment for Higher Priority Programs	-	-	395.133	-	395.133
• FFRDC SEC 8104	-	-0.248	-	-	-
• Economic Assumptions	-	-	-1.335	-	-1.335

Change Summary Explanation

The program changes are threefold: a continuation of the Land-Based Rail Gun (LBRG) program which had two-year funding (FY 2014 and FY 2015); the

expansion of LBRG to include Land-based and Sea-based powder guns; and the addition of three new projects for SCO.

1) Funds are provided to both continue the LBRG efforts that began in FY 2014 and expand the program to include Land-based and Sea-based Powder Guns. This combined program will demonstrate closing the fire control loop between existing sensors and prototype projectiles launched from Railgun and existing powder guns, including Navy's Mk-45 five inch Naval gun and the Army's Paladin 155 millimeter (mm) self-propelled howitzer powder guns.

2) The Sea Dragon project will integrate an existing weapon system into an existing Navy platform to demonstrate a cost-effective offensive weapon system capability.

3) The Unmanned Aerial Vehicle (UAV) Payloads project will leverage existing low-cost payloads by integrating them with UAVs (e.g. micro-UAVs) capable of autonomous swarming behaviors.

4) The Sea Mob project, in partnership with the Office of Naval Research (ONR), will develop a group of Unmanned Surface Vehicles (USVs) capable of cooperative swarming behaviors.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604250D8Z / *Advanced Innovative Technologies*	Project (Number/Name) P250 / *Advanced Innovative Technologies*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
P250: *Advanced Innovative Technologies*	-	125.811	174.752	469.798	-	469.798	422.206	104.195	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Strategic Capabilities Office (SCO) identifies, analyzes, demonstrates, and transitions game-changing applications of existing and near-term technology (and other U.S. Government capabilities) to shape and counter emerging threats. Currently focused on the Asia-Pacific Rebalance, SCO combines capability innovation with concepts of operation and information management to develop novel concepts often crossing Service, Defense-Intelligence, and multi-classification divides. SCO helps to solve critical national security challenges in partnership with the Services, Defense Agencies, Combatant Commands (COCOMS), Joint Chiefs of Staff, Intelligence Community, and the Office of the Secretary of Defense (OSD). SCO analyzes, demonstrates, and red-teams these concepts on an accelerated time frame to enable subsequent programmatic decisions on alternative capabilities that have greater mission impact and lower cost.

The Advanced Innovative Technologies Program Element (PE) contains projects that include in-depth analysis to determine technical and operational performance and risk, component and subsystem-level prototyping and testing to reduce risk, and operational demonstrations to prove concept viability prior to subsequent programmatic decisions. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Land-Based Rail Gun (LBRG) and Land-Based and Sea-Based Powder Guns	125.811	102.000	270.430
Description: The title of Land-Based Rail Gun (LBRG) has been expanded to account for the inclusion of "Land-and-Sea-Based Powder Guns", to further enhance base defense capabilities in this PE. The existing Navy Science and Technology (S&T) Sea-based Railgun program will be leveraged into LBRG and powder gun analysis, prototyping, and experimentation. Cost-effective, large magazine base defense will be demonstrated by closing the fire control loop between existing sensors and prototype projectiles launched from Railgun and existing powder guns including the Navy's Mk-45 five inch Naval gun and the Army's Paladin 155 mm self-propelled howitzer. To facilitate this, the program will integrate powder guns, the Railgun launcher, power, projectile, and sensor so that projectiles may be command guided during a series of flight tests. These tests will verify performance and lethality results from modeling and simulation. Testing will conclude by demonstrating projectile fly-out and control, sensor tracking of projectiles, communication from sensor to projectile, integrated guidance, navigation and control, culminating in FY 2016 live-fire, closed-loop launches from a 20 mega-joule (MJ) Railgun and powder gun, and live-fire tests against live targets in FY 2017. The intended end-state is a prototype system that retires risks to allow transition of gun based defense to partners: the Missile Defense Agency, the Navy, and, or the Army.			
FY 2014 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** P250 / *Advanced Innovative Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
• Initiated development of high fidelity models and simulations for gun launched guided projectile engagements. • Anchored projectile models with wind tunnel and flight test data in collaboration with the Navy's Office of Naval Research (ONR). • Analyzed several effective sensor architectures using existing sensors to support gun launched guided projectile engagements. • Selected sensors to support FY 2014 flight tests of prototype projectile airframes. • Conducted several projectile airframe flight tests in collaboration with ONR. • Installed tracker hardware and successfully tracked a projectile flight with tactically relevant measurement accuracies in collaboration with ONR and the Army's Armament Research Development and Engineering Center. • Tracked eight projectiles launched from a Mk-45 powder gun with multiple sensors including Northrop Grumman Ground/Air Task Oriented Radar (G/ATOR), Raytheon Improved Sentinel prototype radar, Raytheon Multi-Function RF System (MFRFS) radar, Technovative Applications' interferometric radar, and a variety of electro-optical and infrared sensors at White Sands Missile Range (WSMR). • Proved launch survivability of projectile guidance and navigation electronics on four of four projectile launches from an Mk 45 powder gun at WSMR. • Updated projectile control actuation system requirements and design based on wind-tunnel and flight testing. • Established Systems Engineering Integrated Product Teams for Railgun Systems. • Accelerated procurement of updated control actuation systems from General Dynamic Ordnance and Tactical Systems (GD/OTS). • Continued high fidelity closed-loop fire control modeling and simulation with Naval Surface Warfare Center / Dahlgren Division (NSWC/DD), Missile and Space intelligence Center (MSIC), and John Hopkins University / Applied Physics Laboratory (JHU/APL). • Began procurement of 20 MJ Railgun launcher system (power and energy, launcher, cables, test stand, and launcher/power controls). • Began design of high power prototype Railgun mount with BAE. • Began procurement, based on successful testing, of two proof-of-principle fire control radars for fire control development and testing. • Began development of operational prototype fire control radar with Georgia Tech Research Institute (GTRI), to improve upon the proof-of-principle radars by incorporating existing active electronically scanned arrays. • Began hardware in the loop facility development at JHU/APL to test hardware and software prior to flight tests at lower cost and risk.			
FY 2015 Plans: • Fire three prototype projectiles from Mk-45 powder gun to test datalink under development by Sandia National Laboratories. • Complete a Railgun prototype mount analysis of alternatives review with BAE. • Complete fire control system requirements review, Preliminary Design Review (PDR), and Critical Design Review (CDR) to support FY 2016 tests.			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** P250 / *Advanced Innovative Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
• Complete Railgun Mount PDR with BAE. • Complete system concept for integrated gun base defense (power, railgun, powder gun, fire control system, projectile, and sensor). • Conduct live-fire projectile launch from Army 155 mm powder gun. • Accelerate BAE hypervelocity projectile development and testing. • Modify Mk-160 software and integrate data link to enable closed loop fire control for testing of prototype projectiles from railgun and powder guns. • Test launch survivability of projectile, including control actuation system and data link from 32 MJ Railgun. • Test projectile control actuation system from GD/OTS. • Investigate and test alternative lethality methods. • Conduct hardware in the loop test of proof-of-principle fire control radars. • Take delivery of two proof-of-principle fire control radars. • Begin to receive and test pulsed power containers procured from BAE, General Atomics, and Raytheon. ***FY 2016 Plans:*** • Complete assembly and checkout of a 20 MJ Railgun at White Sands Missile Range (WSMR), including BAE supplied launcher and pulsed power procured from BAE, General Atomics, and Raytheon. • Complete concept of operations for powder gun defense with Army and Navy transition partners. • Complete system requirements document and system design document to support live fire testing beginning in FY 2017. • Conduct closed-loop live-fire testing with 20 MJ Railgun and powder guns against synthetic targets. • Build government-designed projectiles for FY 2016 and FY 2017 testing. • Conduct Railgun Mount CDR with BAE. • Test maneuvering projectile capabilities in hardware-in-the-loop at JHU/APL and railgun and powder gun live-fire demonstrations at WSMR. • Support projectile testing for sea-based Railgun tests with equipment and facilities at WSMR. • Continue prototype fire control sensor development with GTRI to support closed loop fire control tests beginning in FY 2018. • Continue to anchor NSWC/DD, MSIC, and JHU/APL models and simulations with test data. • Begin procurement of prototype fire control sensor hardware and begin integration for live fire testing beginning in FY 2018. • Begin procurement of surveillance sensor hardware and begin integration for live fire testing beginning in FY 2018. • Begin fabrication of 32 MJ prototype Railgun mount for live fire testing beginning in FY 2018.			
Title: Assured Tactical C2 (ATC2) ***Description:*** Leverage existing technologies to analyze and demonstrate an alternative Tactical Command and Control solution for contested environments. Project will apply existing Department of Defense (DoD) investments in novel ways to increase	-	31.390	14.359

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
tactical command and control reliability in contested environments. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2015 Plans:*** • Conduct design reviews and operational technology exchanges to incorporate Army, Air Force, Navy, and U.S. Marine Corps tactical cloud requirements into an integrated, secure, assured capability. • Acquire hardware, software, and test design solutions and evaluate components in a trusted environment. • Begin design and prototyping for subsequent proof-of-principle demonstrations by leveraging existing commercial cloud technology and techniques to enhance Services, cloud development and integrate into development baselines. • Begin development of enhanced security and vulnerability assessments. ***FY 2016 Plans:*** • Unify the various tactical Service clouds into an integrated, secure, and assured operational environment that provides reliable communications and robust security for the tactical warfighter.			
Title: Advanced Navigation ***Description:*** Leverage existing technologies to analyze and demonstrate a prototype advanced navigation technique for contested environments. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2015 Plans:*** Project will apply existing technologies to demonstrate advanced navigation techniques on weapons and platforms to include manned and unmanned vehicles. FY 2015 efforts will include design, prototyping, data collections, and tests. Test results will be used to anchor modeling and simulation performance results and develop operationally-relevant proof-of-principle demonstrations. • Analyze mount options. • Purchase prototype hardware, perform integration analysis of existing platform and conduct tests. • Begin modeling and analysis of sensor size, accuracy, and detection range to include satellite brightness. ***FY 2016 Plans:*** • Develop and conduct operationally-relevant proof-of-principle demonstrations to anchor modeling and simulation performance results.	-	15.250	16.359
Title: Intelligence, Surveillance, and Reconnaissance (ISR) Denial	-	14.950	19.356

Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Description: Leverage existing technologies to analyze and demonstrate a prototype solution to disrupt enemy targeting of critical U.S. assets. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2015 Plans:*** • Initiate collaboration across DoD laboratories on potential ISR denial solutions. • Identify trade space between different technical approaches. • Complete ISR Critical Design Review (CDR). • Purchase and integrate hardware which supports CDR design. • Conduct modeling and simulation analysis of potential solutions to better understand performance and potential trade-offs for development decisions and Concept of Operations (CONOPS). • Perform initial testing of the system to validate system performance. • Begin work on modeling and simulation efforts to better inform CONOPS development. • Begin preliminary efforts to ensure integration with related efforts. ***FY 2016 Plans:*** • Continue modeling and simulation in support of CONOPS development. • Plan and execute operationally-relevant proof-of-principle demonstrations with the Fleet in preparation for program of record transition.			
Title: Enhanced Munitions ***Description:*** Leverage existing technologies to analyze and prototype enhancements to current munitions. As existing munitions age, leveraging advanced technology may enhance or buy-back performance, this project will retire risks associated with transition of enhanced munitions. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2015 Plans:*** • Complete a Preliminary Design Review (PDR) and down select from multiple prototype designs. • Conduct system modeling, simulation, and prototype performance trades. • Perform analysis and subsystem testing to develop operationally-relevant proof-of-principle demonstrations. • Pursue target component modeling, simulation, and vulnerability testing. • Verify target component vulnerability and anchor component models. • Develop target engagement requirements.	-	11.162	23.359

Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
• Initiate design and build of surrogate target. ***FY 2016 Plans:*** • Complete a CDR. • Build a prototype (size, weight, and power constrained) for enhanced munition. • Integrate components into a target surrogate and perform vulnerability testing to anchor models and simulations. • Test prototype capability against target surrogate to verify effectiveness.			
Title: Sea Dragon ***Description:*** Cost-effective offensive capability will be demonstrated by integrating an existing weapon system with an existing Navy platform. Project includes analysis, prototyping, and experimentation. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2016 Plans:*** • Complete analysis of off-board targeting options to close operationally relevant kill chains. • Prepare and develop modeling and simulation in support of static ground testing. • Prepare test facilities and weapon firing ranges for subsequent testing. • Update and refine performance characteristics in modeling and simulation based on static testing. • Identify and analyze alternative targeting methods to enable down select and follow on demonstrations. • Conduct hardware-in-the-loop sub-system testing. • Procure long lead range test articles. • Initiate planning to demonstrate use of various targeting methods. • Begin detailed studies on platform, fire control and weapon integration and interoperability in support of future end to end demonstration (FY 2020).	-	-	81.000
Title: Unmanned Aerial Vehicle Payloads ***Description:*** SCO will leverage existing low-cost payloads by integrating them with Unmanned Aerial Vehicles (UAVs) (e.g. micro-UAVs) capable of autonomous swarming behavior. This project seeks to demonstrate the operational effectiveness and tactical advantage provided by large numbers of collaborative, expendable platforms. Effectiveness analysis and prototyping of payloads integrated with UAVs will be conducted, with initial demonstrations planned in FY 2016. This project is currently funded within the Advanced Innovative Analysis and Concepts Program Element 0603289D8Z under the Low-Cost Payloads project and will transition to the Advanced Innovative Technologies Program Element 0604250D8Z in FY 2016. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2016 Plans:***	-	-	24.950

Exhibit R-2A, RDT&E Project Justification: PB 2016 Office of the Secretary Of Defense		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
• Complete CDR for UAV platforms. • Complete payload trade studies to support CONOPS refinement. • Perform subsystem and integration testing. • Conduct initial prototype demonstration. • Anchor modeling and simulations and update operational effectiveness assessment.			
Title: Sea Mob ***Description:*** SCO, in partnership with the Office of Naval Research (ONR), is developing a group of Unmanned Surface Vehicles (USVs) capable of cooperative swarming behaviors. Building on the successful ONR funded USV swarm demonstration in August 2014, this project seeks to demonstrate the ability to generate common situational awareness among USVs and the communications required for sustaining cooperative behaviors. More complex demonstrations are planned over the next several years to prove utility of swarming USVs for multiple missions. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2016 Plans:*** • Complete refinement of rule based algorithms for cooperative behaviors of small boats, to conduct swarm engagements. • Demonstrate simple cooperative behavior among USVs and common situational awareness: sensing, fusion, object recognition, and contact/hazard avoidance. • Begin planning for more complex cooperative behavior demonstrations that include additional sensors, more robust navigation, and reliable communications.	-	-	19.985
Accomplishments/Planned Programs Subtotals	125.811	174.752	469.798

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance metrics are specific to each of the SCO efforts funded under the Advanced Innovative Technologies Program Element. All of which include measures identified in the management approach, Statement of Work (SOW) and Period of Performance (POP). In addition, completions and successes are monitored against schedules and deliverables stated in the initiative's management approach. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Office of the Secretary Of Defense		Date: February 2015
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware	IA	Sandia : NM	-	3.822	Jul 2014	1.572	Mar 2015	1.323	Oct 2015	-		1.323	-	-	-
Primary Hardware	MIPR	SOSSEC : NJ	-	27.377	Apr 2014	6.078	Jan 2015	16.330	Oct 2015	-		16.330	-	-	-
Primary Hardware	MIPR	DOTC : NJ	-	19.326	Apr 2014	28.836	Feb 2015	42.812	Oct 2015	-		42.812	-	-	-
Systems Engineering	MIPR	NSWCDD : VA	-	13.882	Apr 2014	16.849	Mar 2015	26.163	Oct 2015	-		26.163	-	-	-
Primary Hardware	MIPR	BAE : VA	-	18.388	Jul 2014	6.288	Jan 2015	-		-		-	-	-	-
Primary Hardware	MIPR	Raytheon : VA	-	16.528	Jul 2014	-		-		-		-	-	-	-
Primary Hardware	MIPR	L3 : Various	-	4.373	Jul 2014	1.048	Jan 2015	17.250	Oct 2015	-		17.250	-	-	-
Primary Hardware	MIPR	US ARMY FCE : Various	-	0.770	Jul 2014	4.780	Jan 2015	5.750	Oct 2015	-		5.750	-	-	-
Primary Hardware	MIPR	MARCORSYSCOM : VA	-	0.502	Jul 2014	-		53.475	Oct 2015	-		53.475	-	-	-
Primary Hardware	MIPR	ARDEC : NJ	-	-		1.048	Feb 2015	1.150	Feb 2015	-		1.150	-	-	-
Primary Hardware	MIPR	MDA : VA	-	1.766	Apr 2014	6.288	Nov 2014	52.509	Oct 2015	-		52.509	-	-	-
Primary Hardware	MIPR	ARDEC : MD	-	0.403	Jul 2014	-		-		-		-	-	-	-
Primary Hardware	MIPR	MSIC : AL	-	3.616	Apr 2014	1.572	Nov 2014	1.725	Oct 2015	-		1.725	-	-	-
Primary Hardware	MIPR	NSWCIHD : MD	-	1.550	Apr 2014	0.524	Nov 2014	0.575	Oct 2015	-		0.575	-	-	-
Primary Hardware	MIPR	NSWCDD : VA	-	0.439	Apr 2014	0.210	Oct 2014	0.230	Oct 2015	-		0.230	-	-	-
Primary Hardware	MIPR	JHU/APL : MD	-	4.811	Apr 2014	8.699	Nov 2014	9.364	Oct 2015	-		9.364	-	-	-
		Subtotal	-	117.553		83.792		228.656		-		228.656	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	MIPR	NAVSEA : DC	-	0.828	Apr 2014	1.478	Nov 2014	1.150	Oct 2015	-		1.150	-	-	-
Program Management	MIPR	NSWCDD : VA	-	1.463	Apr 2014	1.593	Mar 2015	2.214	Oct 2015	-		2.214	-	-	-
		Subtotal	-	2.291		3.071		3.364		-		3.364	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Office of the Secretary Of Defense			Date: February 2015
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development, Test & Evaluation	MIPR	NSWCDD : Dahlgren, VA	-	3.676	Oct 2014	2.017	Mar 2015	4.658	Oct 2015	-		4.658	-	-	-
Development, Test & Evaluation	MIPR	WSMR : NM	-	-		6.754	Nov 2014	13.053	Oct 2015	-		13.053	-	-	-
Development, Test & Evaluation	MIPR	SOSSEC : NJ	-	2.291	Jul 2014	6.366	Jan 2015	20.699	Oct 2015	-		20.699	-	-	-
Assured Tactical C2	MIPR	ONR, NRL, AFRL, ARL : DMV	-	-		31.390	Oct 2014	14.359	Oct 2015	-		14.359	-	-	-
Advanced Navigation	MIPR	MIT/LL : MA	-	-		1.600	Oct 2014	-		-		-	-	-	-
Advanced Navigation Software Development	MIPR	MIT/LL : MA	-	-		1.400	Apr 2015	-		-		-	-	-	-
Advanced Navigation	MIPR	AFLMC : FL	-	-		12.250	Feb 2015	16.359	Oct 2015	-		16.359	-	-	-
Intelligence, Surveillance, and Reconnaissance (ISR) Denial	MIPR	JHU/APL : MD	-	-		14.950	Oct 2014	19.356	Oct 2015	-		19.356	-	-	-
Enhanced Munitions	MIPR	MSIC, MDA : AL, VA	-	-		11.162	Nov 2014	23.359	Oct 2015	-		23.359	-	-	-
Dea Dragon	MIPR	IWS, NAVSEA, NUWC, SPAWAR, NAVAIR & JHU/APL : Various	-	-		-		81.000	Oct 2015	-		81.000	-	-	-
Unmanned Aerial Vehicle Payloads	MIPR	MIT/LL, SSC Pacific, NAWCWD : Various	-	-		-		24.950	Oct 2015	-		24.950	-	-	-
Sea Mob	MIPR	NSWC/CCD, NSWC/PCD, JHU/APL, PSU/ARL, JPL : Various	-	-		-		19.985	Oct 2015	-		19.985	-	-	-
		Subtotal	-	5.967		87.889		237.778		-		237.778	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	125.811		174.752		469.798		-		469.798	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Office of the Secretary Of Defense			Date: February 2015
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	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Office of the Secretary Of Defense		Date: February 2015
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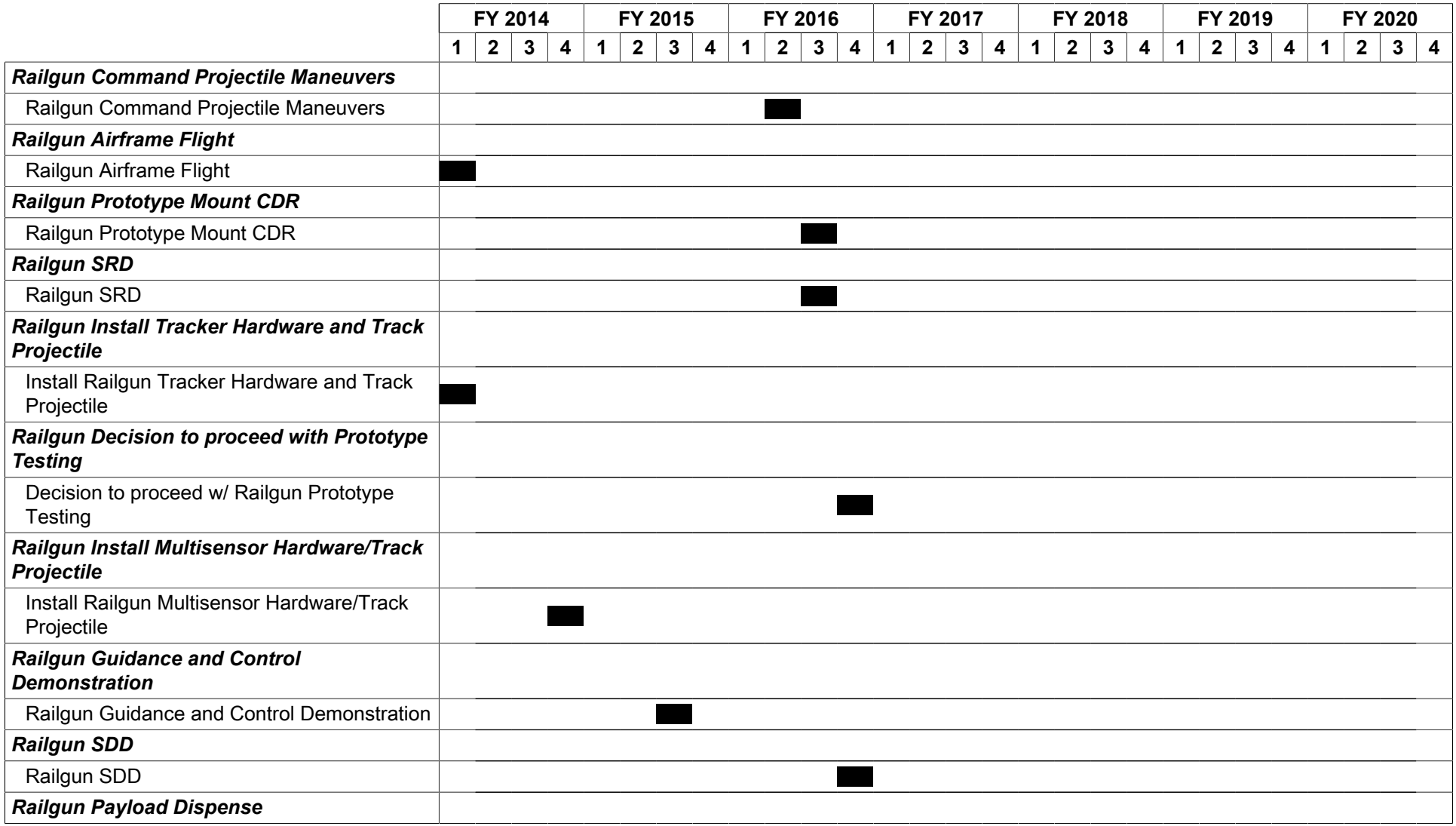

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Office of the Secretary Of Defense		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** P250 / *Advanced Innovative Technologies*

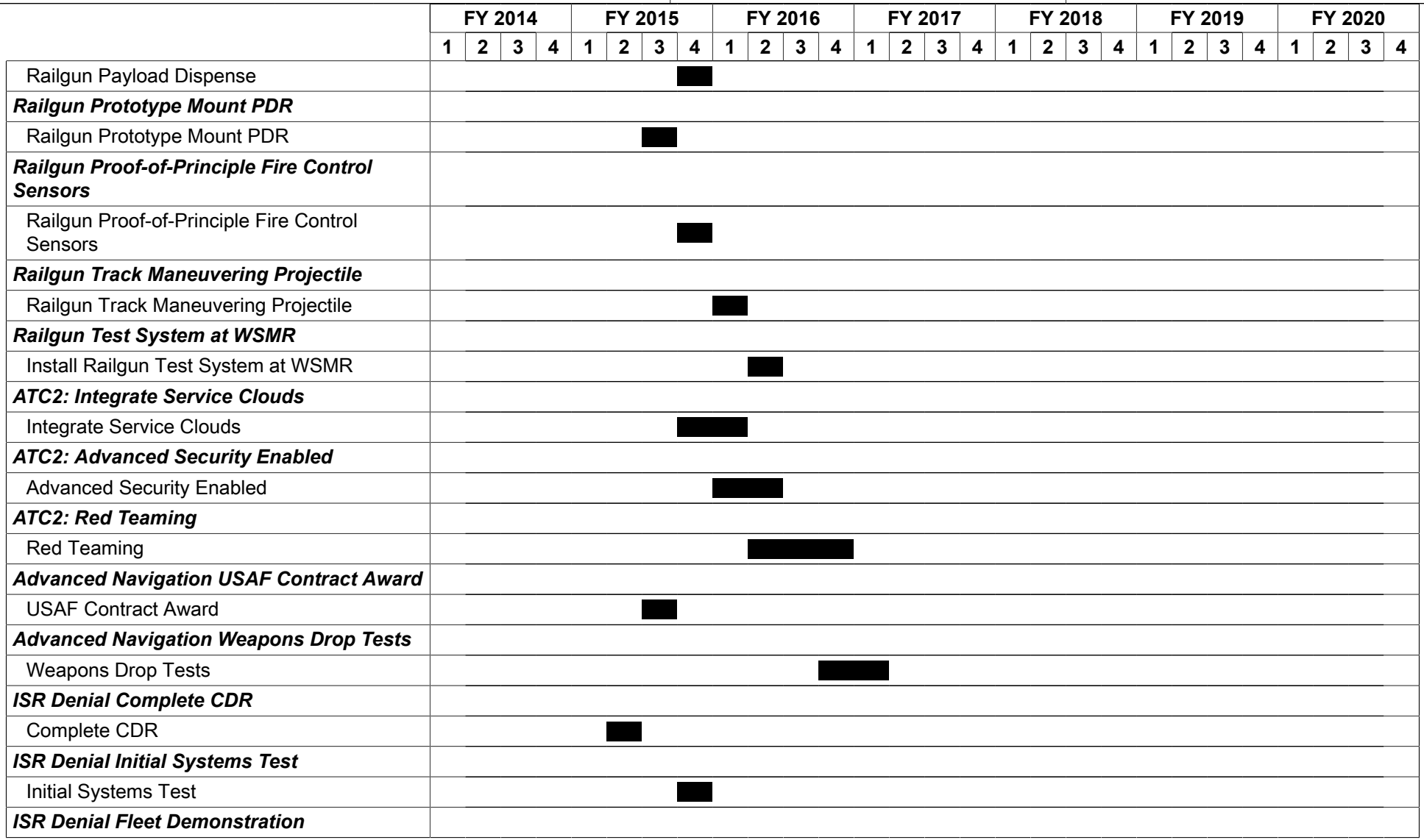

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Office of the Secretary Of Defense		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** P250 / *Advanced Innovative Technologies*

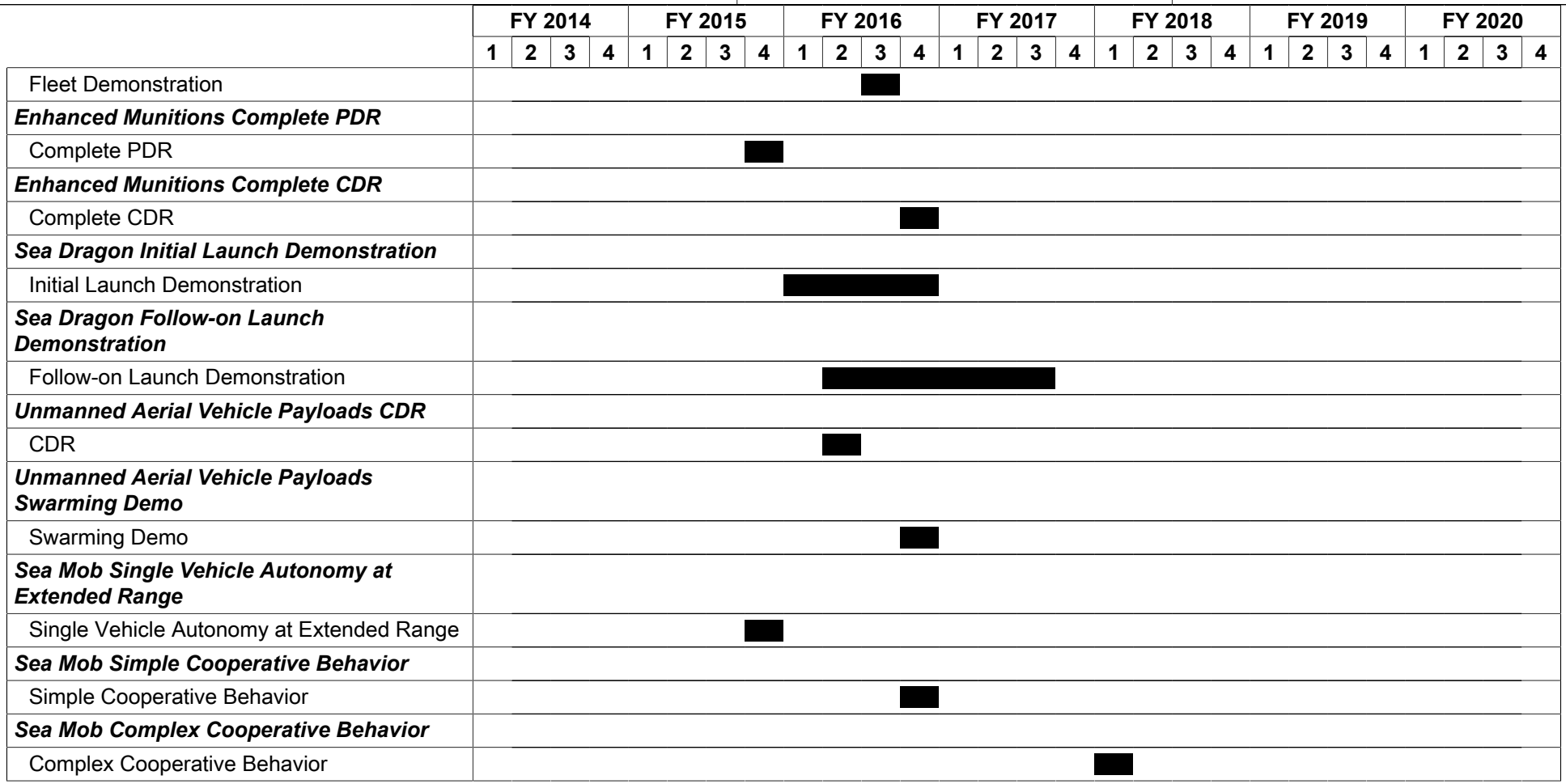

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Office of the Secretary Of Defense		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** P250 / *Advanced Innovative Technologies*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Railgun Command Projectile Maneuvers				
Railgun Command Projectile Maneuvers	2	2016	2	2016
Railgun Airframe Flight				
Railgun Airframe Flight	1	2014	1	2014
Railgun Prototype Mount CDR				
Railgun Prototype Mount CDR	3	2016	3	2016
Railgun SRD				
Railgun SRD	3	2016	3	2016
Railgun Install Tracker Hardware and Track Projectile				
Install Railgun Tracker Hardware and Track Projectile	1	2014	1	2014
Railgun Decision to proceed with Prototype Testing				
Decision to proceed w/ Railgun Prototype Testing	4	2016	4	2016
Railgun Install Multisensor Hardware/Track Projectile				
Install Railgun Multisensor Hardware/Track Projectile	4	2014	4	2014
Railgun Guidance and Control Demonstration				
Railgun Guidance and Control Demonstration	3	2015	3	2015
Railgun SDD				
Railgun SDD	4	2016	4	2016
Railgun Payload Dispense				
Railgun Payload Dispense	4	2015	4	2015
Railgun Prototype Mount PDR				
Railgun Prototype Mount PDR	3	2015	3	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Office of the Secretary Of Defense		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** P250 / *Advanced Innovative Technologies*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Railgun Proof-of-Principle Fire Control Sensors				
Railgun Proof-of-Principle Fire Control Sensors	4	2015	4	2015
Railgun Track Maneuvering Projectile				
Railgun Track Maneuvering Projectile	1	2016	1	2016
Railgun Test System at WSMR				
Install Railgun Test System at WSMR	2	2016	2	2016
ATC2: Integrate Service Clouds				
Integrate Service Clouds	4	2015	1	2016
ATC2: Advanced Security Enabled				
Advanced Security Enabled	1	2016	2	2016
ATC2: Red Teaming				
Red Teaming	2	2016	4	2016
Advanced Navigation USAF Contract Award				
USAF Contract Award	3	2015	3	2015
Advanced Navigation Weapons Drop Tests				
Weapons Drop Tests	4	2016	1	2017
ISR Denial Complete CDR				
Complete CDR	2	2015	2	2015
ISR Denial Initial Systems Test				
Initial Systems Test	4	2015	4	2015
ISR Denial Fleet Demonstration				
Fleet Demonstration	3	2016	3	2016
Enhanced Munitions Complete PDR				
Complete PDR	4	2015	4	2015
Enhanced Munitions Complete CDR				

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Office of the Secretary Of Defense		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** P250 / *Advanced Innovative Technologies*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Complete CDR	4	2016	4	2016
Sea Dragon Initial Launch Demonstration				
Initial Launch Demonstration	1	2016	4	2016
Sea Dragon Follow-on Launch Demonstration				
Follow-on Launch Demonstration	2	2016	3	2017
Unmanned Aerial Vehicle Payloads CDR				
CDR	2	2016	2	2016
Unmanned Aerial Vehicle Payloads Swarming Demo				
Swarming Demo	4	2016	4	2016
Sea Mob Single Vehicle Autonomy at Extended Range				
Single Vehicle Autonomy at Extended Range	4	2015	4	2015
Sea Mob Simple Cooperative Behavior				
Simple Cooperative Behavior	4	2016	4	2016
Sea Mob Complex Cooperative Behavior				
Complex Cooperative Behavior	1	2018	1	2018